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ABSTRACT

This handbook contains general procedural and methodological guidelines for inplant programs to upgrade unskilled workers. It can also be used as an aid to train professionals in the methods and approaches of inplant training. Generalized from the experienc of 4 years of demonstration projects, the handbook explains the concept of inplant upgrading and provides guidelines for program planning, operations, and evaluation. Comprehensive marketing procedures for selling upgrading programs to employers are appended. (BH)

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A Handbook for Upgrading Low-Skill Workers

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PREFACE

A Handbook for Upgrading Low-Skill Workers attempts to synthesize the experience and findings of more than four years of research and demonstration work in upgrading underemployed workers in the plant environment. The Handbook contains procedural and methodological guidelines for individuals and organizations undertaking in-plant programs to upgrade low-skill workers to higher levels of work and productivity. The guidelines are not intended to be job or program specific, but rather apply to a wide range of industry conditions and problems for which in-plant upgrading programs provide at least a partial solution.

Apart from its direct application as a set of operational guidelines, the Handbook can also be used as an aid to train professionals in the methods and approaches of in-plant training. Each of the major Handbook sections (including the Appendix) could accompany other training resources or serve as reference materials in seminars to train personnel to design and implement in-plant programs. Supplementary materials and references noted in the Handbook could also be used to expand the content of sessions based on the Handbook.

The guidelines contained in each section of the Handbook have been generalized from the experiences of a series of projects sponsored by the Office of Special Manpower Programs, Manpower Administration, U.S. Department of Labor, since 1966. The primary objective of the total effort was to develop and test a set of "tools," methods and approaches which could be used to upgrade underemployed workers in the plant setting. The approaches developed had to operate within realistic time and cost parameters which attempted to minimize the organization's investment in training while achieving desired performance objectives. This same consideration has governed the selection of the generalized methods and approaches recommended in the Handbook.

The Handbook is divided into four major sections:

Section I: An Introduction to the In-Plant Upgrading Concept and the Handbook

Section II: Guidelines for Program Planning and Development

Section III: Guidelines for Program Operations

Section IV: Guidelines for Program Evaluation

In addition to the four major sections, Appendix A, "Marketing In-Plant Programs," provides guidelines which government agencies, industrial associations, or commercial organizations will find helpful in introducing the in-plant upgrading concept to firms. The principles of marketing and good salesmanship which are outlined in Appendix A will also be of use to managers of personnel and manpower development in "selling" the concept within their own firms.

Whether the Handbook is to be used as an operations guidebook or as a training tool, it is important to remember that the procedures and methodology recommended are general in nature and provide only the framework within which specific decisions can be made for a particular program. Ultimately, the success of any in-plant program will depend on the skill and creativity of the Handbook user in adapting the general principles described herein to meet the requirements of the specific plant conditions which he faces.

This document was prepared by Humanic Designs Corporation (formerly Skill Achievement Institute) under Contract Number ML 82-34-70-04 with the Manpower Administration, U.S. Department of Labor, under the authority of the Manpower Development and Training Act.

SECTION I

AN INTRODUCTION TO THE IN-PLANT UPGRADING CONCEPT

and

THE HANDBOOK

THE CONCEPT OF IN-PLANT UPGRADING

The concept of in-plant upgrading and other forms of on-the-job training is not new to industry. In fact, almost all workers are trained "in-plant" to perform the specific tasks called for by their jobs. Even on the technical level, the Labor Department reports that more than 50% of the technicians in industry are trained for their jobs through some form of on-the-job upgrading. What then is new or different about the concept of in-plant training which is set forth in this Handbook?

In answer to the above question, there is nothing fundamentally new or different about the concept of in-plant upgrading advocated by this Handbook. The difference and the newness lies in its application to the specific problem of upgrading the low-skill worker who is underemployed — he possesses the potential to make a greater productive contribution to the firm without having the skills necessary for him to do so. The difference is one of degree, not of kind.

In the traditional upgrading or on-the-job training process, the worker being upgraded is unable to perform the specific tasks required by the job for which he is being trained, but he does not lack the general educational level or the motivation which he needs to learn those tasks. Given the success of traditional upgrading schemes, we can also assume that the worker being upgraded possesses the necessary aptitudes.

But, what if the worker lacks the prerequisites — general education and motivation (as is the case with the low-skill, underemployed worker)? Can a firm undertake an investment in the training of an employee which is not job specific and from which any other firm may receive the benefits if the employee leaves? Can a firm invest in the training of an employee if the time and costs involved far exceed the returns it can expect on that investment in the form of increased productivity?

The answer to both questions is "no." Even if the firm avowed the strongest of social consciences, it could not operate long on the basis of such investment decisions. The government subsidies which cover the extraordinary costs to firms of employing and training the "hard-core" unemployed and other disadvantaged groups are ample testimony to the validity of this assertion.

But the "hard-core" unemployed are not the low-skill underemployed, and while the difference again may be one of degree, it is significant. The underemployed worker is working, and in many cases may be a loyal, long-term employee. Can he be trained in-plant for a more highly skilled and productive job at costs to the firm which are less than the returns it will receive from his increased productivity? The experience of more than four years of experimental work with participating firms in almost every major industry answers in the affirmative. The approach which makes this possible requires the following:

- a method of job analysis which identifies job requirements both in terms of task performance standards to permit the development of highly condensed, job specific training curriculum and in terms of worker traits to permit a more efficient selection of workers for training;
- a method of training which integrates the learning of general educational skills with the job specific skills, teaches the first in terms of the second, and which utilizes the most advanced approaches to instruction; and
- a planned schedule of rewards and non-job-related activities and programs which reinforce the trainee's learning of job-related skills and increase his self-esteem and motivation to perform.

The above three elements are at the core of a successful approach to the in-plant upgrading of low-skill workers. The principles involved in their formulation are basic and remain fixed even though the specific programs resulting from their application to varied situations may be completely different. Sections II and III of the Handbook provide guidelines for employing these three core elements in the design and operation of in-plant upgrading programs for low-skill workers. Although the guidelines relate specifically to programs for the low-skill worker, firms may well discover that many of them offer more efficient alternatives to the training of all levels of employees.

In summary, the Handbook is not proposing a new process for upgrading workers. Building on the successful tradition of in-plant training by industry, the Handbook sets forth guidelines by which low-skill workers can be trained for more productive jobs with minimum costs and maximum efficiency. The process by which the low-skill workers are to be upgraded incorporates many of the principles of the upgrading tradition with more advanced educational techniques. The success of the approach outlined in the Handbook depends largely on more efficient methods of determining job requirements and designing training curriculum.

Before proceeding into an outline of the content of the major Handbook sections, it is important to have an understanding of the documented experience with the recommended approach to upgrading low-skill workers and the types of occupations and industries in which it has been successfully employed.

UPGRADING THE LOW-SKILL WORKER IN THE PLANT ENVIRONMENT: BACKGROUND AND EXPERIENCE

Between 1966 and 1970 more than 3,500 workers were upgraded through in-plant programs in New York City; Newark, New Jersey; Baltimore, Maryland; and Cleveland, Ohio. Almost eighty percent of those workers were employed in various service work, laborer and operative classifications within manufacturing, service, retail, finance and insurance, communications and government operations. Many of the workers were upgraded to technical and skilled service positions within the health sector. Specific areas involved a range of occupations from sanitation workers to telephone operators and from various machine operators to stockmen, mechanics, truck drivers and laboratory technicians.

Eighty-four percent of the workers upgraded were black or Spanish speaking, and the majority of them were concentrated in the prime working age group of 25-44 years. Sixty percent of the workers were females, many of whom were employed by public and private hospitals. Approximately half of the trainees were heads of households and primary wage earners. More than forty percent of the workers supported two or more dependents. Many of the workers had moved into the urban area from the rural South. The average worker had completed less than ten years of formal education.[1]

The volume and diversity of this experience attests to the replicability of the approach to upgrading low-skill workers. The diversity of the experience assumes greater importance when it is realized that, despite variations in operating conditions and training requirements, certain techniques evolved which had a universal application. Of equal importance, certain situations and conflicts were noted that appeared in different programs (such as the specific resentment between the trainees and their peers not included in the program) with a regularity that resulted in the development of standard techniques and methods for dealing with them.

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[1] Skill Achievement Institute, Upgrading the Underemployed Worker: Five Years of Experimentation and Demonstration - A Summary. Manhasset, New York; 1969.

What evolved from the total experience was not a standard in-plant upgrading program "package," but rather a set of techniques and methods which could be used to design and implement an upgrading program for low-skill workers in almost any plant setting. It is these techniques and methods with which the Handbook is concerned.

THE COMPONENTS OF AN IN-PLANT UPGRADING PROGRAM

The activities of any in-plant training program can be organized into three basic components: (1) Program Planning and Development, (2) Program Operations, and (3) Program Evaluation. Specific activity groupings which will appear in any program under these three components are as follows:

Program Planning and Development

- analysis of general manpower needs
- analysis of specific job requirements*
- curriculum and materials development*
- trainee selection*
- program scheduling and administrative arrangements
- operations procedures development

Program Operations

- training for job specific skills*
- conduct of non-job specific training*
- general administration and reporting
- data collection
- scheduling rewards (not directly related to training)*

Program Evaluation

- interviewing and observing
- reporting to management

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* These activity groupings are the operational equivalents of the core elements mentioned on page 2, above.

In this format the components and the activity groupings within them appear deceptively simple. Each grouping actually encompasses a complex set of activities which are generic to any in-plant program. Each of the three remaining sections of the Handbook is devoted to one of the three components and the activities included within it. In combination, the three sections should provide the Handbook user with a comprehensive set of guidelines by which he can design and implement a specific in-plant program to upgrade low-skill workers.

SECTION II

GUIDELINES FOR PROGRAM PLANNING AND DEVELOPMENT

INVOLVEMENT OF MANAGEMENT AND SUPERVISORS IN PROGRAM DEVELOPMENT

The ease with which the trainer will be able to implement all program planning and development activities will largely be determined by the extent to which he is able to involve management and appropriate supervisory personnel in those activities. The trainer will need to involve management and supervisors in the following stages of the development process:

- Management assistance in the performance of a general manpower needs analysis and giving the trainer its perception of key areas of need and guaranteeing him access to data needed for problem identification and analysis.
- Supervisory assistance (at least two supervisors) in the performance and evaluation of the job task and requirements analysis and curriculum development activities.
- Management, supervisory and union assistance, and support in the conduct of trainee selection, program scheduling, facilities arrangements, etc.

The failure to secure full management and supervisory support at any one of these stages can hinder the development of the program. The checkpoints for involvement of management and supervisors are indicated in each of the following sections. The trainer should anticipate the need for their involvement well in advance of the actual need. Schedules, appointments and interviews with supervisors and management should be arranged in advance.

THE GENERAL MANPOWER NEEDS ANALYSIS

The purpose of the General Manpower Needs Analysis is to give the trainer or individual responsible for designing the in-plant program, an overview of the total plant production process, or service delivery system, the way in which workers in various occupations relate to that process or system, and the interdependent relations of the various occupational groups. Even if management has already selected the job to which workers are to be upgraded, this overview may still be helpful.

The trainer should also be aware of the following "vital statistics" of the plant or department in which training is to be conducted:

- the absolute number and relative concentration of workers (particularly underemployed workers) in defined jobs or occupations;
- the volume of production or service delivery defined in terms of finished products or system output; e.g., number of automobiles completed each day or number of patients receiving direct patient care, etc.;
- the characteristics of the production process or service delivery system; e.g., it acts on a raw milk resource to pasteurize, homogenize and containerize a finished milk product for distribution to consumers through the retail market. The trainer should have a general grasp of what raw materials or goods are being processed (inputs), how they are processed, and how long they are in process before becoming finished goods or services (outputs);

- areas of production in which underemployed workers are concentrated;

- the relationship to and interdependence of other occupational groups and those in which underemployed workers are concentrated (presumably on a lower level than other occupations); and

- the key areas where work performed by underemployed workers interface with the responsibilities of higher level occupations.

In interviewing operations management and supervisory personnel as part of the general manpower analysis, the trainer should attempt to elicit their perceptions of the problem areas which might involve upgrading underemployed workers and to determine where the phenomena of shortages of sufficiently skilled workers, turnover rates, absenteeism and disruptive friction represent chronic conditions having a negative effect on productivity and efficiency.

As the result of the general manpower analysis, the trainer should be able to understand the target occupation in terms of need and its strategic importance to the total production process. It is absolutely vital that the trainer have a concrete understanding of the manpower requirements of the total production process.

JOB TASK AND REQUIREMENTS ANALYSIS [1]

The Job Task and Requirements Analysis is the key element among all program design activities. The purpose of the analysis is (1) to identify tasks and determine performance criteria and worker knowledge and skill requirements for purposes of training curriculum development and (2) to determine the aptitudes required for purposes of trainee selection. Four basic steps are involved in the Job Task and Requirements Analysis:

- Defining the Job
- Identifying Tasks
- Describing Tasks
- Determining Task Requirements

Methods and guidelines for performing the activities within each of these basic steps are set forth in the following sections. All four steps are necessary for the design of any in-plant program.

Defining the Job

The purpose of this first phase of the Job Task and Requirements Analysis is to determine the relationship between the target job and all other jobs with which it interacts in the production process (*i.e.*, where the duties and responsibilities of the target job end and those of interfacing jobs begin).

1/ Before undertaking a Job Task and Requirements Analysis, the trainer should familiarize himself with the most recent work in the field. A rigorous methodology for identifying and scaling tasks, in terms of skills, is presently being developed by the Health Services Mobility Study project, directed by Dr. Eleanor Gilpatrick and sponsored by the Research Foundation, City University of New York. The recent work of Dr. Sidney A. Fine at the W.E. Upjohn Institute for Employment Research also provides valuable background material.

At this stage of the analysis, the tasks constituting a particular job should simply be listed and, as such, should only be considered a preliminary identification of tasks. In listing tasks, the trainer should be careful that he is describing a full task rather than only a fragment of a task or a task element. For the purpose of this Handbook, a job task shall be defined as "that set of activities, all of which would be needed to produce an identifiable output which could be used, acted upon, or advanced in production by an individual who may or may not be the performer." On the other hand, a task element is "an action, bit of knowledge, use of equipment, or aspect of work which is the smallest possible meaningful unit of work. In contrast with a task, an element cannot have an identifiable output which can be used, acted on, or advanced in production by someone other than the performer."[2/] The preliminary listing of tasks is best developed through the trainer's working with supervisors and interviewing workers presently working in the target job.

The preliminary listing of all the tasks (as defined) which compose the target job completes the first step in the Job Task and Requirements Analysis "Defining the Job."

Identifying Tasks

The second stage of Analysis is a refinement of the preliminary task listing. Through continuous interviews with several supervisors (if possible) and additional workers, the list of tasks is checked against different sources.

The importance of ascertaining whether the units listed are complete tasks at this stage is crucial.

The refined task listing should be compared with formal job descriptions (if any) and collective bargaining agreement descriptions. If the listing departs from these descriptions, or if the participating supervisors or workers disagree with the listing, the discrepancies must be resolved at this stage.

Describing the Tasks

Each of the tasks in the completed listing should now be numbered and transcribed to work sheets which provide space for a full description of the task. The work sheet should

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[2/] Eleanor Gilpatrick and Irene Seifer, "A Re-test Manual for Scaling Task Dimensions (working Paper #7)" Draft, Health Services Mobility Study, January, 1970. Pp.3-2-2-3.

also provide space for the date, time, trainer's or analyst's name and the name of the worker who is to be observed or interviewed. (See Appendix B for sample form)

The trainer must now observe each task as it is performed by a worker presently on the target job, preferably in the order or sequence with which it is done in relation to all other tasks. If observation is not possible for each task the trainer should interview the worker (or a knowledgeable supervisor) to obtain an accurate description. If possible several workers in the same job should be interviewed or observed to remove individual idiosyncrasies from the task description.

While observing the task and/or interviewing the performer, the trainer should note the following:

- The tools, equipment, and materials which the worker uses and the way in which he uses them.
- A description in as detailed terms as possible of what the worker actually does.
- The time needed to perform the task and the frequency with which it is performed.
- The performance criteria associated with the execution of the task, particularly in terms of time, margin of error, safety precautions and quality standards.
- A description of the output of the task.

Notations on the Task Description Worksheet should be as detailed and exacting as possible. Seemingly unimportant detail such as adjusting certain levers, or checking measurements can be crucial to the determination of task requirements and the development of training curricula.

Each task should be described in the above terms on a separate worksheet. Once the description is completed, the next stage in the Analysis,"Determining Task Requirements" can begin.

Determining Task Requirements

For each task which has been identified, the analyst must assess the worker traits needed to perform it. In conventional analyses, a team of analysts make a judgement, not only of whether a trait is involved, but to what degree it is needed. The trainer and a knowledgeable supervisor could form the "team" for an in-plant program.

Task Trait Requirements can be categorized into the following three groups:

- Knowledge
- Skills
- Aptitudes

It is assumed that knowledge and skills can be learned through training, whereas worker aptitudes are essentially fixed and unalterable. The analysis of knowledge and skill requirements will have the greatest import for curriculum development while the analysis of aptitudes will relate largely to trainee selection.

Guidelines for determining the knowledge, skills and aptitude requirements for each task are contained in the following sections.

Determining Knowledge Requirements

Following the observation and description of tasks, the analyst must proceed to determine what enabling knowledge is needed for the worker to undertake the task. The specification of the knowledge requirements will require the involvement of an expert (in some cases the supervisor) in the analysis.

Knowledge, as distinguished from the ability to perform the task (skills and aptitudes), is that body of theory and/or principles which the performer needs to know in order to execute the task. The dividing line between knowledge and skills is often unclear, and the resulting specification of something as knowledge or as skills may be purely arbitrary. However, for the purposes of the Handbook the following general guidelines should provide a working framework for the specification of task knowledge requirements. From the outset, it is important to note that some tasks may have no knowledge requirements as the term is used here. The following examples may be useful in helping the reader to distinguish between knowledge and other task requirements.

A power brake operator in a metal fabrication plant must read blueprint specifications in order to lay out a particular piece of work. The ability to read the blueprint specifications is a skill. The ability to translate the two dimensional blueprint layout into the shape of a three dimensional object is primarily an aptitude involving spatial relations and spatial visualization. If the type of material to be used as the workpiece is also specified in the blueprint or by some fixed procedure, no knowledge is required by the task. However, if the operator must draw upon a knowledge of the principles of metal stress, etc. in order to select the material which most appropriately meets the specifications, then the task involves a knowledge requirement.

The specification of the knowledge requirements should be scaleable; *i.e.*, if the knowledge required by the above task is "principles of stress and expansion for x, y and z metal alloys," this specification could ultimately be incorporated in some larger body of principles, *e.g.*, solid mechanics theory or structural design.

Another sample task which can serve to illustrate more dramatically the difference between skills and knowledge requirements, is that of giving a patient an injection. Even if the amount and content of the injection have been prescribed, some knowledge may still be required to perform that task. The manipulation of the syringe itself involves a complete series of skills and aptitudes. Preparing the patient for the injection requires some people relations skills. However, the decision as to precisely where to inject the syringe in the patient's body involves a knowledge of anatomical principles which are part of a larger body of principles — physiology.

As may be seen from just these two examples, the specification of a task's knowledge requirements requires the participation of an expert. The specification of skill and aptitude requirements is far less demanding.

Determining the Skill Requirements

As distinguished from knowledge (a body of information or theory which the performer needs to know in order to perform the task), skills are those body movements, physical manipulations, information handling, and human relations requirements of the task.

Several fairly complex methods of identifying and scaling task skill requirements are available or in the development stages,[4] and would have to be relied upon if job restructuring is necessary. However, for the purposes of in-plant training and this Handbook, the specification of the skills required by the individual tasks can remain fairly concrete and straightforward since it will be used primarily for training curriculum development.

From the task description or continued observations of workers performing the task, the trainer and a knowledgeable supervisor proceed to specify what the skill requirements of the task are. An example is in order.

Assume that the job being analyzed is that of a power brake operator in a sheet metal fabrication plant. The task for which the skill requirements are to be determined is:

> the power brake operator details layout
> on workpiece from blueprints.

The output of this particular task would be a workpiece that has been accurately marked according to specifications and can now be positioned in the press for shaping.

No knowledge would be required forthe task, unless the performer would also have had to select the workpiece which may have involved a knowledge of the stress characteristics of certain types of materials.

The skills required by the task could be identified as follows:

- reading blueprint specifications

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[4] See Footnote No. 2.

- converting scale measures to actual size (multiplication of whole or fractional numbers).

- copying blueprint specifications to correct scale on workpiece (using rule and marker).

Thus, the performer would have to be able to read blueprint specifications, perform simple multiplication within the set rules of scale conversion, and copy blueprint drawings to corrected scale before he could execute the task successfully. As can be seen from the example, each of the skills involved are learnable, whereas the aptitudes which may be required in order for the worker to acquire those skills (e.g., a certain degree of finger dexterity and spatial visualization) may not be learnable, at least within the time limits imposed by in-plant training.

The performance criteria which are part of the original task description will place certain limitations on or determine the degree to which the skills must be acquired. For the sample task only a very small margin of error would be permitted. The numerical value of that margin will be determined by the standards set for a particular piece of work; e.g., one millimeter on all faces of the drawing.

The skills indicated for the sample task are information handling (reading and computing) and physical manipulation skills. The analyst should also be aware of the possibility of some tasks involving the performer's relationship with peers and supervisors in the execution of the task. These relationships may involve a range of skills from those as simple as signalling to those involving supervising, directing and negotiating skills.

Some jobs (particularly clerical occupations) may involve a range of information handling skills which are required with a regularity that permits the use of tests to determine the extent to which those skills are required by particular jobs. Since the appearance of these skills in individuals can be determined by tests, this area of skill requirements can be used in trainee selection. Some commonly occurring information handling skills are as follows:

- Alphabetizing

- Spelling

- Reading
- Writing
- Grammar
- Speech (Clarity of enunciation)
- Computation

In performing the task analysis, the analyst would only have to determine whether or not each of the above skills appears to be required to some extent. Testing and statistical procedures can be used to determine precisely to what extent they are required, and this information can be fed into trainee selection and curriculum development. (See "Trainee Selection" for methodology.)

The specification of skill requirements should be a consensus among the members of the analytic team.

Determining Aptitude Requirements

The task must also be analyzed to determine what aptitudes are required for successful performance. Aptitudes are those worker traits such as manual dexterity, reaction timing, mechanical aptitude, etc., which are essentially fixed. Since test instruments exist which can measure the extent to which aptitudes are present in individuals (and thereby the extent to which they are required by certain jobs), it will only be necessary for the team of analysts to indicate whether or not a particular aptitude appears to be required by the task to any extent. The extent to which it is required will be determined by the testing and statistical techniques described under "Trainee Selection," below.

The following Sample Form could be used in the analysis of task aptitude requirements.

SAMPLE FORM

TASK REQUIREMENTS:

APTITUDES

Form#______

Job Title____________________ Code__________ Date________

Analyst/Supervisor__________________________

Form used for consensus? Yes 1
No 2

Task#______ Description:____________________________

	Not Needed at all	Needed	
		Only to a very slight extent	To some small but appreciable extent or greater
Basic Aptitudes*			
Spatial Visualization	0	1	2
Spatial Relations	0	1	2
General Mechanical Aptitude	0	1	2
Control Precision	0	1	2
Manual Dexterity	0	1	2
Finger Dexterity	0	1	2
Reaction Time	0	1	2
Color Discrimination	0	1	2

Once the aptitudes for each task have been identified, the presence of aptitudes for all tasks can be summarized using the same form.

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* This listing may be expanded or refined depending on the particular requirements of the job, and in some cases may include requirements for certain temperaments or physical duress factors.

TRAINEE SELECTION

Before the selection of trainees for the in-plant program begins, some criteria should be established which allow for the selection of trainees on the basis of the probability of their succeeding in training and on the job. While such criteria could never be totally predictive due to individual personality differences, changing work conditions, etc., criteria can be developed which will avoid the selection of trainees who are basically ill-suited for the target job. In the development of selection criteria, the trainer will probably need the assistance of the firm's personnel office or an industrial testing specialist.

During the last stage of the Job Task Analysis, certain basic aptitudes and non-job specific skills were identified as worker traits required to some extent by the job. Due to the economic constraints placed on a firm's undertaking in-plant training for low-skill workers and the resulting intensive nature of those programs, we can assume that the degree to which workers possess the required aptitudes and non-job specific skills cannot be altered (although this certainly would not be true over extended time periods and with considerable investments in general education and training which are more properly the concern of public education).

Given the assumption that required aptitudes and non-job specific skills are fixed for the purposes of in-plant training, the process of developing appropriate selection criteria becomes relatively simple. It will involve establishing requirement norms which are based on levels possessed by workers presently acceptably performing in the target job. The volume of work that has been done in developing special test instruments for disadvantaged workers in the past decade will make the task considerably easier.

For each of the aptitudes and non-job specific skills which were judged to be required by the job during the final stage of Job Task Analysis (e.g., General Mechanical Aptitude or alphabetizing), an appropriate industrial test should be selected to serve as a standard for measuring the appearance of the particular trait in workers.

The firm is well advised to select culture fair versions of all tests to be used by low-skill workers.

Once the appropriate tests have been selected for each of the required traits, the tests should be administered to a sample of workers (at least as large as the number of workers to be trained) who are presently employed on the target job. The validation of tests at this stage will be more successful if present employees "volunteer" to participate and if the firm assures that the results will not affect the employment of individuals participating. "Volunteers" may be recruited through an introductory letter from the trainer or the personnel office which could read as follows:

> "The Personnel Department is conducting a series of testing experiments. It will need the help of employees working in__________jobs within the ________________Department. You have our full assurance that this testing is being done only to "test the tests" and the results will not be used, now or later, in any way that will affect your standing with the company."
>
> Personnel Director
> Shop Steward (if any)

Once a sample of employees working in the target job has been selected, each should be observed performing the tasks identified through the Job Task and Requirements Analysis and rated according to whether their performance is "below average," "average" or "above average." The criteria to be used in determining the level of their performance are the same as the performance criteria developed during Job Task and Requirements Analysis. If the employee performs within the "acceptable" range of the performance criteria, his performance would be rated as average, etc. The task performance ratings for each employee should be combined to obtain a performance rating for the job as a whole. The combined ratings for individuals should be listed separately and held intact for a later correlation with test scores.

Each test which has been selected should now be administered independently to the sample group and analyzed for its correlation to the job.

After the test scores have been obtained, the results can be analyzed by dividing the sample group of employees into two groups based on their performance ratings: (1) a "high performance" group (average and above) and (2) a "low" performance group (below average). The employees are then divided into two test score groups on the basis of test scores, and for each test score group the percentage of "high performance" employees with scores in the test score group range is computed. If significant statistical differences are found between the two groups, it may be safely assumed that the test is measuring something of importance on the job. The analysis may be verified by comparing the differences between an increased number of test score groups defined by smaller score ranges.

Once tests for each identified aptitude or non-job specific skill have been validated in this manner, the tests should be combined in a battery. For purposes of the Handbook, the multiple cut-off method of test combination is recommended.[4]

Minimal test scores can now be used as criteria for selecting workers for the target job.

However, it is unlikely and even undesirable that the candidates' test scores should serve as the only basis for selection.

In most plant situations several other stages in trainee selection would precede the testing procedures outlined above. Among them are:

- Candidates for the program may be recommended by supervisors on the basis of previous performance records.
- Collective bargaining agreements and labor relations policies may require that candidates be referred for training on the basis of seniority or occupational grade provisions.

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[4] See Ibid.,
G. Grimsley, "A Comparative Study of the Wherry-Dolittle and a Multiple Cutting Score Method." Psychological Monographs, 63 (No. 2, 1949) 1-24., and
Edwin E. Ghiselli, The Validity of Occupational Aptitude Tests, John Wiley & Sons, Inc., New York, 1966.

- Workers may be asked to initiate their own candidacy by volunteering for the program.

- Combinations of the above and others.

All of the above methods may be used to establish a list of candidates for the program. In addition, to insure that workers ultimately selected would be those who could benefit most from the program, the firm may wish to screen candidates on the basis of income needs (number of dependents, etc.), ethnicity or other factors.

Whatever procedures are followed in developing a list of candidates for the program, the final selection of trainees should be on the basis of the testing procedure described before. The setback to the worker and to the firm will be far greater if a worker selected for the program is unable to succeed, than if his job growth or vocational goals were channeled in a direction where success was at least a possibility.

It is advisable that trainee selection precede curriculum development activities, since the composition of the training group may have considerable influence on the nature of non-job specific elements selected for the program, and the time required for job skills training.

CURRICULUM DEVELOPMENT

Developing a Curriculum for Skills Training

Curriculum development for the skills training component is based on the job task and requirements analysis. With the identified tasks as the basic content units, the curriculum development process takes place in the following stages:

- developing instructional objectives and trainee performance criteria;
- sequencing task content units;
- determining content breakout;
- determining instructional approach, techniques and methodology for each content unit.

The following sections provide detailed guidelines to the trainer for his activities in each of the above stages.

Developing Instructional Objectives and Trainee Performance Criteria

Taking each task as a separate content unit, the trainer must develop the instructional objective for each and qualify the objective with criteria by which the trainee's performance is to be evaluated.[7] The task description will be the heart of the objective statement. The instructional objective for each task can be organized as follows:

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[7] The trainer will find Robert F. Mager's Preparing Instructional Objectives, (Fearon Publishers: Palo Alto, California, 1962) an invaluable tool at this stage.

1 Required knowledge and skills	2 Description of Task to be Performed	3 Performance Criteria

On separate file card, the trainer should formulate the instructional objective for each of the identified tasks. A sample format for the cards would be as follows:

S A M P L E

Instructional Objectives

Task # ____________________

(1) Given: (specify required knowledge and skills needed to perform the task) ____________________;

(2) The trainee will be able to (describe the task) ____________________;

(3) With the following conditions (state the performance criteria in terms of time, margin of error, safety precautions, and quality standards.) ____________________.

The task and requirements analysis worksheets (for task descriptions, skill requirements, and knowledge requirements) should contain all the information needed to formulate an instructional objective for each task. Once training actually begins, the trainer may break down the task instructional objective into units relating to task elements.

Sequencing Tasks as Units of Instruction

The most desirable sequencing of tasks as units of instruction would be in the order in which they are performed on the job. For most jobs this order generally follows the pattern of setting up, operating and terminating. However, more complex tasks (in terms of knowledge and skill requirements) may precede simpler tasks within this "natural" order. And it may be more efficient in training terms, to rearrange the sequence so that simpler tasks precede and build toward more complex tasks.

If this is the case, the general pattern of task arrangements should still be maintained, but the ordering of tasks for instruction within the general pattern can proceed from the least to the most complex. Thus, setting-up tasks can be ordered from least to most complex for purposes of instruction.

The index cards denoting instructional objectives can be used conveniently for purposes of instructional sequencing.

Preparing the Curriculum Outline

For each task, a curriculum outline must be developed. The outline should include:

- the instructional objective
- an outline of program content in the order of instruction
- materials required for instruction
- recommended mode of training

The sample form below provides a workable format for the outline relating to each task:

Sample Form
Curriculum Outline

Type of Task (e.g. setting-up)

Task Number ______________

Instructional Objective (From index cards)
____
____
____
____.

Content Outline	Required Materials	Recommended Mode of Training

The content outline for any task should procede from content relating 1) to knowledge requirements to 2) skill requirements and to 3) task performance requirements. For the sample task identified in preceding sections,

> "operator details layout on workpiece from blueprint specifications,"

there are no knowledge requirements if the material to be used as a workpiece is specified. However, certain skills are required. The content outline for this task could be formulated as follows:

Content Outline	
I. Reading Blueprints A. Blueprint format B. Meaning of blueprint symbols and standard notations C. Types of blueprints	Skill Requirements
II. Computing Layout Dimensions from Blueprint Scale	
III. Copying Layout (to scale) from Blueprints with Appropriate Tools, etc.	
IV. Acceptable Limit of Error in Copying	Performance Requirements
V. Time Expectations for Workpiece Layout	
VI. Safety in the Layout Work Area	

Once the content outline is complete, the instructional materials (texts, tools, sample blueprints, etc.) which will be required for each content unit must be listed. At this stage, the trainer should also indicate the mode of training which is best suited for each content unit. Possible modes include; 1) supervised on-the-job training 2) classroom or institutional training, 3) laboratory or work simulated training.

Thus, for example, content unit I from the above example could be completed as follows:

Content Outline	Materials	Mode
I. Reading Blueprints		
A. Blueprint format	Sample blueprints	Classroom

When the curriculum outline for each task is completed, they are combined in order to form the total skills training curriculum.

IMPORTANT NOTE

Once the skills training curriculum is completed the trainer should review the standard lesson formats for all tasks with the supervisors participating in the program. They will play a major role in all supervised on-the-job training and must be aware of how this training fits into the total curriculum. Once agreement is reached, the curriculum outline should be reproduced in a final (preferably typed) form to be included in the trainer and trainee manuals.

Developing a Curriculum For Non-Job Specific Elements

Having completed the skills training curriculum for the program, the trainer can proceed with the development of a curriculum for non-job specific elements. The following describes how curriculum development activities could be performed for these elements which occurred most frequently in experimental in-plant programs.

Basic Communications Curriculum Development

The basic communications component is closely related to skills training. Taking the probable educational levels of the target training group into account, the trainer should review the skill and knowledge requirements of each task (e.g., must be able to read blueprints, read scales, and fine calibrations, etc.). After listing these requirements in the order in which they occur in the sequenced skills training curriculum, the trainer should develop instructional objectives and content descriptions for each following the guidelines presented under the previous section.

Generally speaking, the basic communications curriculum should attempt to provide trainees with the conceptual foundations necessary for them to learn the specific skill and knowledge requirements of the job. Basic communication lesson units can be sequenced according to their relationship to particular job tasks. Thus, a basic communication lesson unit which has the development of an ability to interpret various kinds of diagrams and blueprints as its objective should precede a skills training lesson which has the ability to read blueprints as a prerequisite.

Other basic communications lesson units may be developed which do not relate directly to task requirements. A sample of such units could be as follows:

- Giving oral directions
- Writing personal and business letters
- Presenting your point of view

The content of non-task related basic communications is largely the prerogative of the trainer. The needs of the trainee group, the region of the country, and other factors will also come into play. The following references can be used by the trainer to detail the content for non-task related lessons:

Cort, Robert P., How to Get an Idea Across; Personnel; July/August, 1951.

Nathan, Ernest D., The Art of Asking Questions; Personnel; July/August, 1966.

Raunsepp, Eugene, How to Sell an Idea to Supervisors; Supervisory Management; October, 1966.

Non-task related lesson units can be sequenced with the skills training units and task related basic communications units to create diversity within the total curriculum.

Leadership and Human Relations Skills Development

If tasks within the skills training curriculum require complex relationships with people, lesson units within this constant can be related to tasks in the same manner as task-related basic communications lesson units. For the position of power brake operator, a lesson unit might well be required to deal with the operator's supervising a helper. For almost all jobs, lesson units will have to be developed to give trainees the skills needed to relate to supervisors in the performance of certain tasks.

The development of task-related human relations content units should follow the skills curriculum guidelines for instructional objectives and content specification, as should the development of any content unit.

Resources which the trainer can use to develop non-task related leadership and human relations content units include the following:

Whitworth, Eugene, How to Give an Order; Supervisory Management; January, 1966.

Winsell, Milton J., What Employers Expect from Their Supervisors; Supervisory Management; June 1966.

A portion of the non-related leadership and human relations skills content units can also be devoted toward improving the trainee's self-esteem and self-awareness. Cultural heritage units may help the trainee to identify with the achievements of the particular group to which he belongs. Various Black History and other cultural heritage programs are available for this purpose.

Again, the content of this element is largely up to the trainer and should be determined by the needs of the particular training group. Non-related units can be sequenced to provide diversity to the total curriculum.

Money Management, Consumer and Legal Education

All of the content units for this constant will be non-related. The trainer could develop lesson units for the following content areas:

Money Management

Loans, interest rates, income budgeting and savings

Consumer Education

Credit buying, comparative shopping, consumer rights

Legal Education

Law for the layman
Garnishees and liens
What to do about arrest records
Eviction
Discrimination

References for the trainer include:

- Lasser, J.K., Managing Your Family Finances. Doubleday, 1968.
- Making the Most of Your Money. Educational Division, Institute of Life Insurance, 1968.
- Money Management Library. Money Management Institute, Household Finance Corporation.
- Law for the Layman, Skill Upgrading, Inc.; Cleveland, Ohio; 1969.

Self-Development and Self-Management Curriculum Development

The content units of this element are also non-task related. The content which is developed should focus on providing the trainee with a guide to community resources where he can get assistance and which he can use to further his own development. The guide could include at least the following:

- Health and hospital resources
- Legal aid
- Housing Assistance

- Recreation
- Educational programs and institutions
- Protective services
- Child care
- Consumer services
- Financial resources
- Family planning
- Veterans services

JOB RESTRUCTURING

Job restructuring may be required if the knowledge, skill and aptitude requirements of the target job represent too great a "distance" over which the underemployed workers can be trained in the plant and within an economical time period. The techniques and methodologies of job restructuring, however, are beyond the scope of the Handbook.

The reader is advised to consult A Handbook for Job Restructuring, U. S. Department of Labor, Manpower Administration, 1970, and the references cited earlier.

SECTION III

GUIDELINES FOR PROGRAM OPERATIONS

THE OPERATIONS FUNCTION

The Operations Function of any in-plant upgrading program can be viewed as a continuous process:

- The Training Process. Training is the process by which trainees acquire job skills and other forms of desired behavior. The training process encompasses all training, educational, counseling, supportive services and reinforcement activities directly related to the trainee's acquiring and applying desired skills and behavior. The trainer has the primary responsibility for directing the training process. The worker's supervisor has a large role in demonstrating and reinforcing learned skills in their application on the job. The training process is the most important element in program operations.

- Maintaining the Training Environment and Rewards Schedule. Second only to the training process in importance is the process of maintaining an environment in which the training can proceed without disruption. Activities within this process include explicitly maintaining continued and visible management support throughout the program, dealing with friction between trainees and supervisors and trainees and peers, and otherwise arranging favorable conditions within the work and training environment. The trainer is responsible for coordination conditions to produce a favorable training environment.

- General Administration, Reporting and Data Collection. The program administration process encompasses a range of activities including reporting, facilities procurement and maintenance, record keeping and schedule design and maintenance. While administration does not contribute directly to the training process, it is a vital element in the support of that process. The trainer supported by company management has primary responsibility for administration.

Each of the above three processes will operate simultaneously. Considerable skill will be required to insure that each achieves the desired objectives. The following sections present detailed guidelines and check points for the trainer who will be responsible for performing the operations function of intensive upgrading programs. The entire operations section must be read and understood before any one of the three processes are put into effect.

THE TRAINING PROCESS

Process Overview and Guidelines for Instructional Techniques and Methodology

Before proceeding into detailed guidelines for training techniques and methodology, the trainer should refer back to Section II, "Curriculum Development." Because the curriculum is based on a job analysis which defines specific tasks and their performance standards, the skills or behavior to be learned for the job specific elements by trainees are precisely those tasks. For a single content unit, the instructional or behavioral objective will be to enable the trainee to satisfactorily perform the task described by that unit on the job. 1/

The process of building the total desired job behavior (the skills required by the target job) is a continuous process involving as many as six steps which must be followed for each task or logical task grouping to be learned in any in-plant program. Three of the six steps involve decision checkpoints which may cause preceding steps to be repeated and/or revised. Figure 1 illustrates the sequence of these steps in the total training process. The chart should be referred to when reading the following sections describing each step. Although the descriptions are particularly applicable to job specific skills training, the same learning process can be applied to non-job specific elements in the curriculum.

Step 1: Presentation of New Behavior (or Skill) to be Learned

In Step 1, the trainer presents (through various methods and techniques) the particular task behavior or skill to be learned.

On presenting new information the trainer must first establish its context. If the subject matter relates to skills to be learned for the target job, it must be placed in the context of actions or skills which proceed and follow it and its relative importance to the total job. If the material to be presented is non-job specific, it must be placed within the framework of the trainee's life experience and environment

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1/See also Robert F. Mayer, Developing Attitude Toward Learning; Fearon Publishers: Palo Alto, Calif. 1968, Chapter 3, and Robert F. Mayer, Preparing Instructional Objectives; Fearon Publishers: Palo Alto, Calif. 1962.

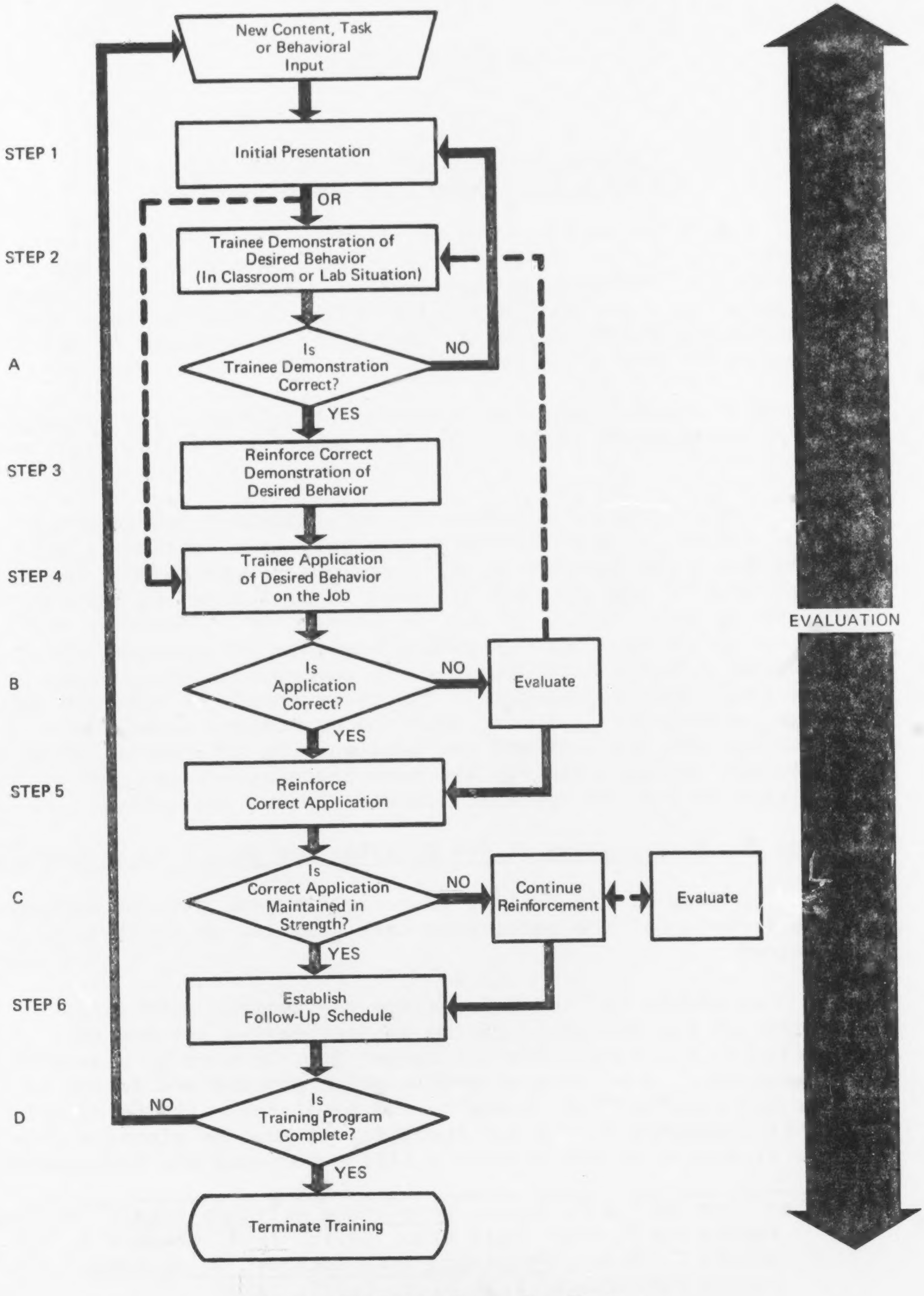
New Content, Task or Behavioral Input
STEP 1
Initial Presentation
OR
STEP 2
Trainee Demonstration of Desired Behavior (In Classroom or Lab Situation)
A
Is Trainee Demonstration Correct?
NO
YES
STEP 3
Reinforce Correct Demonstration of Desired Behavior
STEP 4
Trainee Application of Desired Behavior on the Job
B
Is Application Correct?
NO
Evaluate
YES
STEP 5
Reinforce Correct Application
C
Is Correct Application Maintained in Strength?
NO
Continue Reinforcement
Evaluate
YES
STEP 6
Establish Follow-Up Schedule
D
Is Training Program Complete?
NO
YES
Terminate Training
EVALUATION

Figure 1 The Training Process Flow Chart

with the application of the new information to that experience and environment being emphasized. Once a context for the behavior to be learned is established, the trainer must state the objective for learning the behavior.

The instructional technology to which the trainer has access is concentrated in the area of subject matter (behavior to be learned) presentation. Techniques of instruction such as audio-visual presentation, cueing, lecture, instructor demonstration, role playing, mechanical devices and others can all serve as effective means for presenting the behavior to be learned.

As a general rule, in presenting new materials to low-skill workers the trainer should move from the specific to the general, from the experiential to the conceptual. Each new task or task element should be grounded in the trainee's experience. The trainee should be given the opportunity to apply the new knowledge as soon as possible following the presentation. The trainer's lesson plan should indicate not only the behavioral objectives for the lesson unit, but also the format for presentation.

Example: In a program to upgrade car washers and polishers employed by a new car dealer to "make ready mechanics," the trainer was presenting a lesson unit on carburetor adjustment. The behavioral objective for the lesson was: "To enable trainees to adjust the carburetor on new model X-70 so as to achieve the mix of air and gas necessary for efficient engine functioning."

The trainer began his lesson by reviewing the service check points which precede carburetor adjustment (the context). He then elicited from the trainees personal accountings of problems with their own automobiles which ultimately turned out to be attributable to "carburetor trouble" (grounding in experience).

Using a model of the X-70 carburetor, the trainer then proceeded to demonstrate how to adjust the air and gas intake valves on the carburetor to achieve a proper mix. Trainees were then allowed to perform the same adjustments. The trainer permitted each trainee to try until he achieved the correct response to which the instructor expressed explicit approval and invited the approval of the trainee's peer group. (This trainee demonstration sequence belongs to Step 2.) After each trainee successfully demonstrated the correct adjustment, the trainer began a discussion as to why different air and gas mixtures produce different affects (movement from the concrete to the conceptual).

The trainer should familiarize himself with the whole range of techniques and methods which can be used in the presentation.[2]

Step 2: Trainee Demonstration of Desired Behavior, Skill or Task

Following the trainer's presentation of the desired behavior (or a logical segment thereof), trainees should then be allowed to demonstrate their understanding of the desired behavior under conditions which simulate conditions in the work environment. If it is not possible to create simulated work conditions, the trainer should proceed to Step 4, where the trainer must make arrangements for trainees to practice the application in the work area. Trips to the work area should be anticipated in advance and cleared with the involved supervisor. The trainer should also involve the supervisor in trainee demonstrations.

Simulation can be achieved by bringing the equipment or materials to be used into the classroom (as in the example of the carburetor, above).

For the non-job specific elements, providing the opportunity for the trainee's demonstration is more difficult since the demonstration, to be valid, may require "real life" situations. It must be emphasized, however, that the trainee's ability to restate or describe the behavior to be learned is not necessarily an indication that he has actually learned the behavior. For example, if money management is one of the non-job specific elements which has been selected for the program, the trainee's statement that he knows how to budget his income and can describe the method presented by the instructor should not be accepted as a successful demonstration of learned budgeting behavior.

Various techniques can be used to simulate "real life" situations in the classroom and to monitor the trainee's demonstration of learned behavior both in the work environment and outside the work environment. Closely controlled role playing is a particularly effective method for simulating "real life" situations in the training area.

- Example #1: The trainer wants to elicit from the trainee group a correct worker-response to unjust criticism from a supervisor. The trainer creates a role-play situation in which one of the trainee's (or the trainer himself) plays the unjust supervisor and another trainee plays the unjustly criticized worker. Through simulating a situation in which the supervisor unjustly criticizes the worker, the trainee's response can be evaluated by the group against what other members feel would be a correct response.[3]

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[2] See The Training and Development Handbook, American Society for Training and Development, McGraw Hill, New York, 1967 and B.F. Skinner, The Technology of Teaching, Appleton-Century-Crofts, New York, 1968.

- Example #2: The trainer can monitor the trainee's learning of income budgeting behavior by assigning trainees the problem of budgeting their own incomes and having them attempt to live within that budget for a one-week period. Daily checks can be made with trainees as to their "budgeting behavior" and effectively monitored in this manner. A good starting point would be to have the trainee attempt to account for a previous week's expenditures.

Decision Checkpoint A

At this point the trainer must evaluate whether or not the trainee's demonstration was a correct interpretation of the behavior presented. If correct, the trainee's response must immediately be reinforced. (See Step 3 below.) If incorrect, the trainer must again present the behavior to be learned, and either break the presentation down into more comprehensible units,or alter the method of presentation. An incorrrect trainee response should never be punished!! The trainer runs the risk of depressing a whole range of desired responses by punishing a single incorrect response. The trainer must also be sensitive to negative feedback and response from trainees during the presentation and demonstration.

Rather than attempting to correct the trainee's response by a negative, the trainer must demonstrate or "cue" the trainee as to the correct response. If the trainee is still unable to respond correctly, the trainer should evaluate his method and form of presentation as well as whether or not the desired response represents such a large step from the trainee's present knowledge or skills that it cannot be achieved until an intermediate unit is learned.

3/ See sections concerned with role playing in The Training and Development Handbook, ASTD. Also see Alan Klein, Role Playing, The Associated Press, New York, 1961.

The trainer must also act to neutralize "punishment" of an incorrect response by the trainee's peer group. Peer group rewards and punishments are usually more powerful forces in determining trainee behavior than those offered by the trainer. The trainer must mobilize the rewards offered by the peer group to serve as reinforcement for desired trainee behavior.

Step 3: Reinforcement of Correct Demonstrated Behavior

Once the trainee is able to demonstrate correctly the desired task or behavior, the instructor should reinforce his performance.

The instructor has many alternatives for the positive reinforcement of correctly demonstrated behavior. Two of the alternatives have already been mentioned:

- Trainer Approval: Expressed as obvious approval of demonstrated behavior through facial expressions or positive verbal statements.
- Peer Group Approval: Solicited by the trainer as positive acclaim for the trainee's achievement of correct behavior.

In expressing his approval, the trainer can evoke the potential of long-term rewards (e.g., salary increase, title change, and increased status) and of potential shorter-term rewards such as supervisory approval. The timing of refreshments,which were a standard element in many of the experimental in-plant programs, can also serve to indirectly reinforce the correct behavior of the entire training group (as after a particularly difficult presentation and demonstration). The trainer can also use statements summarizing the progress of individuals and the group as reinforcement for continued correct performance.

There is some danger in overusing reinforcement techniques. If the trainer provides positive reinforcement for each repeated successful demonstration of the particular task or form of behavior, trainees may become dependent on reinforcement, expecting it after each successful completion of a task. If the reinforcement does not follow, the trainee's performance may deteriorate and he may become disgruntled.

A general guideline which evolved during the experimental phases of in-plant training indicates that the trainer should arrange for frequent positive reinforcement when the particular behavior is first being mastered, and less frequent reinforcement as the desired behavior becomes consistent. In the process of decreasing the frequency with which he reinforces correct behavior, the trainer should attempt to create a sense of self-achievement in trainees — a discipline which trainees can then use to reinforce themselves.

Remember, when reinforcement is provided, the trainer must make sure that it is clearly related to the successful performance of a particular task or form of behavior. The best way to make sure that this occurs is to make reinforcement directly contiguous to the trainee's response. It should be repeated for continued correct demonstrations until the desired skill is well established.

Step 4: Application of Learned Behavior on the Job or Outside the Work Environment

The fourth step in the training process is the real test as to whether or not the trainee has learned the correct behavior. The trainer must make arrangements for the behavior to be demonstrated under actual work conditions. Since trainees are not likely to be assigned to the new jobs until after they have completed training, the trainer will probably have to make special arrangements with the new job supervisor (perhaps during a day of the week when training is not scheduled).

In the application of the learned behavior on the job, the supervisor must be the person who monitors the demonstration. The trainer must meet with the supervisor beforehand to indicate precisely what skill is to be demonstrated and the role of the supervisor in the demonstration. To the extent possible, the demonstration should not disrupt the production process. The demonstration of learned behavior on the job should involve a series of units which are logically joined together. For example, the trainees should demonstrate the operation of an entire machine rather than simply how to adjust its setting in making it ready for operation. Or, as in the example given before, the trainees should be given the opportunity to demonstrate the process of tuning the engine of a new car rather than simply demonstrating how to adjust the carburetor.

The conditions of the demonstration should approach those of "real" working conditions as much as possible; e.g., trainees should be wearing the work clothing required and be given the feel of the time pressures associated with performance.

It may not be necessary to have each trainee perform the entire learned behavior to be demonstrated. The trainer and supervisor can arrange the demonstration so that each trainee "participates" in the total process as an observer with each performing a vital segment of the process independently. The experience with experimental in-plant programs indicates that involvement of trainees in the demonstration as "participating" observers is just as effective as direct performance involvement. Trainees can also be divided into smaller groups as well. The importance of maintaining a class size of no more than 10 trainees becomes obvious at this point.

Decision Checkpoint B

At this point the trainer and supervisor must evaluate whether or not the trainee's performance on the job was correct. If the trainee's performance cannot be easily altered through minor corrections in the course of the demonstration itself, a serious problem may be involved. Unsuccessful performance could result from faulty instruction:

- The instructor did not give trainees sufficient information to permit them to perform correctly under "real" working conditions.
- The instructor and the supervisor diverged as to the content and requirements of the task to be performed. (The importance of the supervisor participating in the Job Task Analysis, curriculum development, and of maintaining a close working relationship with the trainer is now obvious.)
- Demonstration conditions in the classroom did not simulate closely enough the "real" work conditions.

If an instructional shortcoming can be clearly identified, the presentation or classroom simulation, or both, may have to be revised and repeated for the trainees. (Instructional shortcomings are a highly probable cause if the entire training group cannot successfully perform.)

If no instructional shortcoming can be clearly identified, other causes must be explored. They might turn out to be one of the following:

- The individual trainee may have "choked up" under the pressures of the real work situation. If this is the cause, individual coaching in the work situation, discussions with the trainee on an individual basis or in group, and continued practice and reinforcement under simulated conditions to build self-confidence have proved to be effective solutions.

- The individual trainee may have been irritated by the particular supervisor monitoring the demonstration. If this can be isolated as the cause, the trainer, through individual and group sessions with the trainee, should be able to alter that aspect of his behavior which made him more "sensitive" to the supervisor than the other trainees. Through a conference with the supervisor, the trainer should attempt to point up the aspects of the supervisor's behavior which irritated the trainee. Nothing will be accomplished by punishing the trainee or berating the supervisor.

- The trainee group as a whole may have been alienated by the supervisor's attitude. Discuss the problem with the appropriate company manager for possible guidance to a solution.[4/] Experience has shown the disastrous consequences of the trainer attempting to confront the line supervisor on his own.

Other causes may also be at work. Both the trainer and the supervisor should carefully examine the possible range of causes before deciding to act.

Step 5: Reinforcing Correct Application on the Job

If the trainee exhibits the correct behavior under "real" work conditions, he should be reinforced. In this case, however, the approval must be demonstrated by the man who has authority on the job — the supervisor. Through conferences and demonstrations the trainer must make the supervisor aware of the need for and the effects of his approval, both at the

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4/ See Lawrence A. Johnson, Employing the Hard-Core Unemployed, American Management Association, Inc., 1969, Chapters 5 & 6.

end of the demonstrated process and at key stages in its execution. The trainer and supervisor can establish a working relationship in which the trainer can cue the supervisor as to when to show approval — particularly if the supervisor is not sure of himself in this role. The frequency of reinforcement on the job should follow the same guidelines outlined in Decision Checkpoint A.

Decision Checkpoint C

Even though a particular task or form of behavior has been learned (and successfully demonstrated and applied in a situation outside the classroom), it does not necessarily follow that the trainee will consistently demonstrate the correct behavior when conditions call for it. Apart from the deterioration of the behavior through time, experience has shown that other factors can intervene causing the desired behavior to break down. This is particularly true of the non-job specific learning which is subject to the influence of environmental conditions outside the direct control of the program.

If a particular form of behavior is not maintained in strength by trainees during training, the trainer should establish a follow-up schedule by which learned behavior is made continually active and is reinforced.

Step 6: Establishing a Follow-Up Schedule

In conjunction with the work supervisor, the trainer should arrange for a follow-up schedule for the continued demonstration and reinforcement of learned skills. This schedule may extend beyond the termination of training and become an effective instrument which the supervisor can use to maintain and improve the productivity of workers under his supervision. During training the follow-up schedule may include review and practice sessions as well as repeated demonstrations.

Decision Checkpoint D

If all the forms of desired behavior required by the program are now being maintained in strength by the trainers, the training program should be terminated. If not, the process should be recycled for the introduction of new behavior, etc., within the time constraints of the program.

Special Sessions

The Opening Session

Experience with experimental in-plant programs indicates that a formal opening session often provides an initial momentum to the program which is not achieved if normal instruction begins during the first session. The objectives for a typical opening session could be as follows:

- to familiarize trainees with the goals, purpose and general conditions of the training program;
- to provide trainees with positive and tangible evidence of company, union and supervisory support for the program; and
- to clarify the conditions of wage increases and title changes which will follow successful completion of the program in addition to reviewing the working conditions of the new job, such as overtime policy, shift schedules, etc. As an orientation, the first session should attempt to overcome anxieties about the new job and training program which the trainees will have as a group.

A certain degree of formality will make the opening session more impressive from the trainee's point of view. Top company officers, managers and union representatives should be present at the opening session and clearly express their support of the program. What is expected of trainees as opposed to what trainees can expect from the program should be made clear.

The training manual and other materials to be used in training are usually presented at this session.

The Terminal Session

Formal terminal sessions for in-plant programs have also been seen to have positive long-range affects on the trainees morale and continued motivation. Company officials, managers and union representatives should be present at a "graduation" ceremony to restate their firm support of the program and the trainees. The announcement of when the promotion and wage increase will be scheduled (the ultimate "reinforcement") is appropriate at this time. A well-planned and successful terminal session can have a lasting positive effect on the trainees.

Additional Notes on Training Methodology

Lesson Planning

Given the intense nature of training and the limited time allocated, thorough advanced lesson planning is absolutely critical to the in-plant program. Working from the curriculum outline previously developed and an evaluation of trainee progress at any point in time, the trainer should prepare lesson plans which detail the following:

- A statement of the desired trainee behavior objectives — what trainees will be able to do as the result of the lesson unit; and the performance criteria the trainer will use to evaluate whether or not the objective has been achieved.
- A definitive outline of lesson content in the sequence it is to be presented to trainees. Remember each lesson unit should build on established behavior and should represent a logical and understandable "next step" from the previous unit. Also remember that the presentation is likely to be more successful with underemployed workers if the sequence moves from the concrete to the conceptual. On a daily basis, this may require alterations in the basic routine curriculum.
- A statement of the techniques and methods to be used in presenting and reinforcing the behavior to be learned at each stage of the lesson.
- A list of the materials, equipment, etc., which are to be used at each stage in the lesson.

In designing the lesson plan, the trainer should keep the training process in mind (Figure 1) and ascertain that each step is provided for in the sequence of lesson units.

While general lesson planning can take place for several lessons in advance, the trainer can be more effective if he reviews and revises his lesson plans on a daily basis. Plans should be revised on the basis of trainee performance in the previous lesson(s). No new lesson unit should be presented until the objectives for the previous lesson have been achieved.

Teaching the Non-Job Specific Elements

Since the objectives for the non-job specific elements in the program are not directly related to the trainee's job performance (in terms of skills and job duties), instruction in this area requires a different approach. A sense of the role of these elements both in motivating workers to perform in the skills area and in increasing their control over other aspects of their lives can be gained from the trainees themselves. In previous programs more than half of the workers upgraded felt that the non-job specifics were of equal, or greater, importance to their self-development as skills training.

The following non-job specific elements and objectives appeared most frequently in the experimental in-plant programs:

- Leadership and Human Relations Skills Development. To enable the trainee to analyze and satisfactorily resolve interpersonal conflicts between himself, co-workers, supervisors and other individuals and to enable the trainee to analyze and respond to issues involving himself and his community. The focus of this element was also on developing the worker's self-image.

- Basic Communications. To enable the trainee to develop verbal abilities which will allow him to solve job-related conceptual activities and to function as an independent agent in society (*i.e.*, read newspapers, budget income, discuss issues, and to successfully communicate his point of view).

- Money Management and Consumer and Legal Education. To enable trainee to understand and act upon his legal rights, his rights as a consumer, and to budget his income to achieve maximum utilization. (Procedures on garnishees, liens, credit buying, Medicare, Social Security.)

- Self-Development and Self-Management Training. To enable the trainee to arrange other opportunities for his development and advancement (educational, health, etc.) on his own.

The number and composition of non-job specific elements will vary considerably from program to program. Selection of content may be based on the particular ethnic and other social characteristics of the training group. (See "Curriculum Development," Section II.)

General References

For additional guidelines on training policies, various instructional methods and techniques, and learning theory, the trainer is referred to:

- Upgrading the Underemployed Worker: High Intensity Training Methodology, Volume 3, Skill Achievement Institute. 1969.

- Bernard M. Bass and James A. Vaughan, Training in Industry: The Management of Learning. Wadsworth Publishing Company, Inc.: Belmont, California. 1968.

MAINTAINING THE TRAINING ENVIRONMENT AND REWARDS SCHEDULES

The training process does not function in isolation. Various factors in the environment within which training takes place can exert considerable influence on training. The trainer, with the support of management, is usually responsible for making sure that all of the external factors do not seriously interfere with training, but conversely are arranged to support it.

Arranging Visible Management Support

The trainer can often enhance the "image" of the program in the eyes of trainees and other plant personnel by arranging for top management to visit training classes and on-the-job demonstration sessions. The recurrent presence of management, which demonstrates a favorable concern for the program, can go a long way toward dissolving resistance to the program among plant personnel not fully understanding its function and purpose. Other means for making management support visible include:

- letters from top management to foremen and supervisors included in the program, stating the extent of their support for the program and requesting cooperation; and
- articles in company publications and notes on bulletin boards describing the program and management's support of its objectives.

Arrangements for refreshments and attractive training quarters are also visible signs of continuous management support and should be presented as such to the trainees.

Minimizing Friction in the Work Environment

Experience has shown that four major sets of relationships hold potential for friction which can disrupt the training process:

- the relationship between the trainee and his peers who are not trainees;

- the relationship between peers enrolled in the program;
- the relationship between trainees and their new supervisors; and
- the relationship between trainees and their supervisors on the present job.

The dynamics of these sets of relationships and the trainer's possible roles with regard to them are discussed in the following:

Trainee/Peer Relations

By being selected for the program, the trainee is, in effect, separated from his peers. From their point of view he has been singled out for "special treatment a treatment for which they may feel they were equally qualified (or more qualified). Unable to express resentment against the impersonal process by which the trainees were selected, the trainee's peers in past programs have expressed their feelings by any one or combination of the following:

- ostracizing the trainee from the peer group;
- giving the trainee a "hard time" about his new status and continued participation;
- creating other conditions in the work environment which place the trainee in trouble with the supervisor or which belittle him before his former peers.

Although the pressures exerted on the trainee tend to be subtle and difficult to detect, they are often the reason why a trainee wishes to terminate from the program.

The trainee himself is the starting point for the trainer in attempting to resolve conflicts arising out of trainee/peer relations. The trainee's demeanor and changed attitudes toward peers is often the trigger which sets off their resentment.

In response to the regularity with which this condition arose, trainers in the experimental program began orienting trainees to the program as early as the first session.

It proved helpful if the trainer pointed out the connection between the trainee's behavior and peer reactions; such as "bragging" about being selected for the program and suggested approaches that the trainees could follow to ease the tension of peer relations. Trainers were also able to cope with the problem by arranging for company and union officials to address those workers not involved in the program.

Trainee/Trainee Relations

The trainer is clearly responsible for conflicts in trainee/trainee relations occurring during the course of training. In resolving most such conflicts, the trainer would be well advised to use a group judgement or condemnation of unacceptable conflict behavior. This is not to say that the trainer should abdicate his responsibility and authority as an instructor, but rather that he use the trainee group to establish and enforce behavioral "norms" for themselves. If the trainer does not establish a form of group self-management, he will find himself in continuous conflict with individual trainees. That conflict will seldom relate to the issue of acceptable behavior, but will often take the form of a struggle for dominance.

Trainee/New Supervisor Relations*

Because of the special nature of the program and the probable cultural, age and income distance between the trainees and their supervisors, supervisors will often feel that they are being asked to assume an unfair burden and responsibility. Because of cultural distance, elements of prejudice (not necessarily racial) may also enter into the relationship. The role of the trainer is to make sure that the supervisor understands the purpose of the program, to involve the new supervisor in decisions relating to program content, and to make supervisors aware of the background and some causes of certain types of trainee behavior. The trainer is often the de facto intermediary in conflicts between supervisors and workers. This positioning will require the ultimate in human relations skills.

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* Refer to sections of Johnson, above for additional notes on the dynamics of supervisor/trainee relations.

Trainee/Old Supervisors Relations

Additional factors may enter into the trainee's relations with supervisors on their present jobs during training:

- The trainee's absence from work for training purposes may cause production problems for the supervisor.
- The supervisor may feel that he is being "robbed" of a worker with whom he has spent considerable time training for the present job.

The trainer must be prepared to deal with these additional factors in his mediating role between trainees and supervisors.

PROGRAM ADMINISTRATION

In operating an in-plant program, the trainer is usually responsible for a series of administrative activities falling within the following two categories:

- facilities maintenance and program scheduling; and
- reports and record keeping.

Facilities Maintenance and Program Scheduling

The trainer is responsible for maintaining the training area and for altering the physical environment in that area to make it optimally conducive to training. The duties implied in this responsibility are obvious enough and require no further explication.

Program scheduling, on the other hand, may become more complex and affected by conditions beyond the trainer's control. Several factors most often intervene in the program schedule originally established:

- Plant production conditions may suddenly be altered (unanticipated) causing training classes to be postponed for one day, or even several days; e.g., accidents, unforeseen special demands, etc.;
- Plant labor relations may result in strikes, slowdowns, etc.; and
- The trainer himself may become ill to the extent that training sessions must be postponed.

Although all of these contingencies may have harmful effects on the program, the trainer can take appropriate actions to minimize negative affects.

If contingencies cause any segment of the program to be rescheduled, the trainer has the responsibility for establishing the new schedule. Of course the new schedule should be cleared with all parties involved; i.e., management, supervisors, and the trainers themselves. The new schedule should not eliminate or alter the sequence of the program as originally planned. The elimination or misplacement of any lesson unit within an intensive upgrading program can have serious consequences. If necessary, the trainer should make arrangements for extending the program beyond the scheduled date of completion. In short, the trainer must proceed to reestablish the sequence and time allocations called for in the original plan.

Reports and Record Keeping

In his administrative role the trainer is usually required to maintain records of the program activities. The records should retain data relating to the following:

- data necessary to quantify program activity;
- data necessary to measure the opening and closing conditions of the program; and
- data necessary to measure trainee performance.

Activities Records

Activities records are to the program as the daily log is to a ship. The trainer must be able to verify and quantify levels of activity to justify the operations to management. The following are examples of the kinds of activity records that the trainer must maintain and report to management in summary fashion:

- Trainee Attendance: Self-explanatory
- Trainee Disposition: Records must be kept to indicate changes in the trainee population by voluntary or involuntary drop-outs, severence of employment, transfers, replacements, etc.
- Trainer Activities: The trainer should keep an accurate record of the time he spends (on a daily basis) among the various elements of the program; i.e., in lesson planning, in training, in supervisory relations, etc.

Records of Pre-Training Conditions

Records of this nature have as their purpose that of describing the opening conditions of the program. They should include:

- Trainee Background: A profile of each trainee in terms of demographic characteristics, present wages, average hours worked, length of employment, present job duties, and any other data which would objectively describe the trainee before he was selected for the program. A sample trainee profile form is included in Appendix B.

- Opening Trainee Performance: An assessment of the trainee's work performance prior to training which would include absenteeism and tardiness data, a description of his behavior on the job, his present skills and his aspirations. Collection of the latter data may be achieved through interviews with supervisors and the trainee himself and should be developed as a "case" history statement for each trainee.

Program Performance Records

Performance records should be maintained as measures of changed trainee behavior from opening conditions. Records should include test scores, daily assessments by the trainer of the trainee's performance in the classroom, ratings of trainee performance in on-the-job demonstrations, etc.

The purpose of record keeping is not to collect data for its own sake. The information should be used by the trainer to measure his own success and by management to evaluate the utility of the program. The trainer should be familiar with the data requirements of evaluation before determining the precise forms and procedures he will use in record keeping.

SECTION IV

EVALUATING IN-PLANT PROGRAMS

EVALUATING IN-PLANT PROGRAMS

Most firms undertaking in-plant programs will want some form of program evaluation to determine the effectiveness of the approach in their particular circumstances. Although sophisticated evaluation methods can add considerable expense to the firm's costs for the program, several less expensive program evaluation alternatives are available which can be used to determine program effectiveness with reasonable accuracy.

Some Relatively Inexpensive Evaluation Procedures

Four of these alternatives are as follows:

- Evaluating Program Effectiveness in Terms of Absenteeism, Tardiness, Quits and Dismissals;
- Evaluating Program Effectiveness in Terms of Job Standards and Observed Trainee Performance;
- Evaluating Program Effectiveness in Terms of Supervisor's Perceptions of the Program's Effects on Trainees; and
- Evaluating Program Effectiveness in Terms of the Trainee's Perceptions of the Program's Benefits to Himself.

Most of the activities required by these alternatives can be performed by the trainer himself or with the assistance of company management or supervisory level training department personnel.

Ideally, all four alternative approaches to evaluation could be used to evaluate a single program. Practically, this may not be possible. Within each of these alternatives the following sections provide general guidelines and examples of different levels of evaluation activities.

Evaluating Program Effectiveness in Terms of Absenteeism, Tardiness, Quits and Dismissals

Comparisons should, whenever possible, be made between a trainee's record with respect to absenteeism and tardiness before and after training. The trainee group as a whole can be compared with respect to these variables and with a "control" group, if such can be found.

Before discussing the mode of analysis of these data, the rationale for and nature of a "control" may need explanation.

In any study of change brought about by a "treatment," in this case training, it has always to be borne in mind that the observed change may be due to factors other than the "treatment" itself. For example, a modification in procedure for recording arrival on, and departure from, the job could change tardiness statistics. In general, there may be factors affecting an outcome variable which are not under the control of the evaluator and of which the evaluator may be unaware. Thus, the outcome may be attributed entirely to the training when it is due solely or in part to other, unknown factors. Therefore, sound methodology includes a control group, upon which the effects of variables not controllable by the evaluator may be assessed and differences between control and trainee group fairly attributed to the effect of training. (This statement is accurate only insofar as the control group is the same as the trainee group with respect to characteristics related to the outcome of training — for example, job-relevant aptitudes, skills and knowledge, or age and socio-economic background — and the differences in outcome are greater than could occur by chance.)

A full discussion of the techniques of selecting a control group and of tests of the "significance" of differences between the control and the trainee group goes beyond the purposes of this text; essentially, the individuals constituting the control should be performing the same work as the trainees, prior, that is, to training, should be earning the same money and if possible should be selected to match, on a one-to-one basis, the trainees in, e.g., age, sex, marital status, family composition, distance between home and work, educational attainment, race/language, length of time in job and job-related aptitudes, skills and knowledge. They must also — and this is vitally important — be uninfluenced by the existence of the training program or the trainees. If possible, they should not even know there is such a program and certainly they should not know that performance is being observed.

The comparisons to be made are as follows:

> Difference between: mean value of variables supposed to be changed by training (e.g., days per month per average individual, lost due to absenteeism)[1] before and after training, in trainee group, compared with the difference in that same variable, over the same period of time, in the control group. If the difference in the trainee group is greater than that for the control (subject to consideration of chance variation) then the training can fairly be said to have influenced the performance of trainees with respect to the variable being measured.

The question of what is "chance variation" calls for a long and technical discussion. The reader is recommended to read any of the many standard statistical texts on experimental design, which will describe tests of significance (as well as procedures for matching control to "experimental groups," including "co-variance" techniques, and the principles of interpreting results). The important point to recognize is that if one is generalizing from a particular group to a "population" of employees — employees of the same characteristics as the group being currently examined who could, conceptually, be put through the same training program in the future — then the group has to be regarded as a sample from a much larger population. Data from this sample are, therefore, subject to "sample error," in the sense that another group of trainees (and, for that matter, of controllees, too) although recruited from the same population as the current group, will not be exactly the same in their response to the training. This error variance can be computed so that the evaluator can assess what is "real" (statistically significant) change, induced by training, and what is chance, which in a series of training programs would average out to nothing.

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[1] This is the simple average obtained by adding up days lost due to absenteeism in a given month and dividing by the number of trainees. An equivalent operation is performed for the control workers. The same approach applies to time lost because of tardiness.

As described, the data for absenteeism and tardiness can be expressed as the mean number of days or hours/minutes lost in a given time interval. One can collect data on the trainees and the control workers for a period of time before training began (maybe three months) and a similar time period after completion of training. Records can be examined on a monthly basis and for the whole period, and it is frequently desirable to "track" the workers for a considerable time, up to a year.

Quits or dismissals are handled similarly, except that the data are most conveniently expressed as a percentage of the trainee group (and of the control group) who quit and the percentage who were fired, in a given time; _e.g._, in the three months before and in the three months after training.

It is worth noting here that the control is useful in eliminating the effects of seasonality, if any. A simple before and after comparison might be invalidated because of changes in climate, order cycles, etc.

Data of the kind described can usually be found in company records since they are needed for routine administration of the work force.

Evaluating Program Effectiveness in Terms of Job Standards and Observed Trainee Performance

This next alternative form of program evaluation is the most simple and direct. It involves the trainer's observing the performance of newly trained workers on the jobs to which they were upgraded and determining the extent to which the observed performance approaches the performance standards for individual tasks. The standards themselves were established as part of the job task analysis process (see Section II) and were used as performance criteria for the instructional objectives in the training curriculum.

Rather than attempting to observe the performance of trainees for all tasks constituting the job, the trainer, in conjunction with the supervisor, should select a range of "most critical" tasks for which the performance of all trainees is to be observed. Observations of trainee performance on critical tasks should take place at least three days after the employee has been placed on the new job.

Once the list of most critical tasks is completed, a simple three point rating scale could be established for each task with the defined task performance standard serving as the middle point or the range of acceptable performance. Trainee performance falling below the acceptable standard would be rated "unacceptable" and performance above the acceptable level rated "superior" as follows:

Task Performance Rating

Date:______________________________

Name of Observed Trainee:__________________

Name of Observer (s):______________________

Task Description:____

____

____

Task Performance Standard:______________________________

____

Trainee's Performance of Task Was:

Unacceptable Acceptable Superior

If possible, the individual trainee's performance should be rated for each critical task by at least two observers (the trainer and the supervisor) with the final rating assigned being a consensus of opinion between the two.

If this alternative is not taken any further, the resulting evaluation can only generally answer the question of whether or not the training respectively prepared the workers for acceptable job performance.

The alternative can be broadened by several additions to the analysis, using the design described earlier:

- The performance of trainees on selected tasks could be observed and rated prior to their receiving the training. A comparison of the pre- and post-training ratings would indicate more accurately the extent to which the training was responsible for improved trainee performance.

- The performance ratings for the group receiving training could be compared with ratings for another similar group of workers (a "control") upgraded to the same position (during the same time period) through the more traditional form of straight on-the-job training. The results would indicate how effective the new in-plant approach was as compared to other forms of training.

Whatever level of this alternative employed, observations of trainee performance of critical tasks should be as unobtrusive as possible. Ideally, the trainee should not even be aware that he is being observed. Periodic observations of the trainee performing a critical task will add to the validity of the rating assigned. The accuracy of the rating itself could be increased by refining the scale.

Evaluating Program Effectiveness in Terms of Supervisor's Perception of the Program's Effects on Trainees

The job supervisor is in the most direct position to evaluate the effectiveness of the in-plant program. He will be working with the newly upgraded workers on a daily basis and will be responsible for their productivity. Although his perceptions of program effectiveness may be colored by certain prejudices and vested interests, the perceptions themselves are important. If he does not perceive that the program has been effective, he will continue to behave as though it were not.

In attempting to measure the supervisor's perception of the program, six major areas of concern should be sampled. These were the areas which appeared as reasonably accurate indicators of supervisor's perceptions of program effectiveness during the experimental in-plant work:

- Responsiveness to Supervision
- Worker Morale
- Quantity of Work
- Quality of Work
- Attendance and Lateness (This, however, should also be measured objectively from company records.)
- General Conduct and Behavior

Using simple interview schedules and a three-point scale gauging the supervisor's perception of whether the in-plant program "improved," "had no effect" or "made worse" worker performance within the above concerns, the trainer can approach the alternative from several angles.

- If the supervisor of the upgraded workers is the same as on their previous job, he can be asked to rate the program's effect within these areas of concern on the trainees' themselves; e.g., "Do you think that the in-plant program improved, had no effect on or made worse trainee X's (or the group as a whole) responsiveness to supervision?"
- If the supervisor of the upgraded workers is not familiar with the performance of the trainees in their previous jobs, he can be asked whether the trainees are "more," "the same" or "less" responsive to supervision as compared to other workers in the same or similar jobs under his supervision.

This evaluation alternative can be refined and expanded by making the areas of concern being measured more specific and increasing the sophistication of instruments and methods used to measure supervisory perceptions.

Evaluating Program Effectiveness in Terms of Trainee Perceptions of the Program's Benefits to Himself

Of equal importance to the evaluation of program effectiveness in terms of supervisor's perceptions, is that of evaluation in terms of the trainee's perceptions. The most frequent areas of concern in which trainee perceptions of program effectiveness can be measured are as follows:

- Usefulness of In-Plant Training for New Job
- Most Useful Item Learned in Training for New Job
- Perception of Treatment by Supervisors After Training
- Perception of New Job
- Perception of Firm's Concern for Him

Interview schedules and simple scales could be developed by the trainer to measure the trainee's perceptions of the effectiveness of the in-plant program for some or all of the above areas. Where the questions are relevant, a before and after and control design can be used here too.

caution has to be exercised in interpreting the results of in-plant interviews, since the worker may feel compelled to give what he perceives to be the answer the interviewer wants. It is desirable to be able to assure the respondent of complete anonymity, and to design the study so that this can be demonstrated to the respondent.

Other Evaluation Alternatives

If the firm wishes to pursue more rigorous and definitive alternatives to evaluating program effectiveness, the following approach is suggested:

Evaluating Program Effectiveness in Terms of Objective Measures of Productivity

Whenever possible, objective measures of performance, such as units of production accepted into the next stage of the production process, should be obtained for the trainee group.

"Before" measures cannot be obtained here, since the trainees can scarcely be allowed to operate in the jobs for which they are to be trained, prior to that training. Comparisons can, however, be made between trainees and a control group selected in the same way as described earlier. (The same considerations of "error variance" apply here too, of course.)

Kinds of data needed include: units of production accepted into next stage (which may be final packaging or another step in an assembly process); units of production rejected because they are sub-standard as a result of inferior processing in the current stage (not an innate raw material flaw); other material wastage (e.g., material being processed in this stage which is not even submitted as satisfactory); machine stoppage attributable to negligence of the operator.

Where possible, dollar values should be assigned. The ideal is to have a consolidated index of productivity per trainee man-hour in dollar terms, and compare this figure with the equivalent for the control workers. One would want a cost of material entering this processing stage, a cost of processing, including labor cost, and the value of accepted output. The difference between the value of accepted output and the sum of material plus processing costs provides a measure of the productivity of the worker, if expressed in man-hours. Even if the measures of costs and value are crude, the comparison of trainee's productivity per man-hour with the productivity of the control group, per man-hour, is still useful provided the same measures are used to compile the index.

One final point. The cost of training should be brought into any program evaluation. This cost can be seen as an investment and judged in terms of its pay-off in the production capacity of the organization against other pay-offs, if the same money was invested in alternatives (other companies' stock, new machinery, etc.).

The following materials are suggested for further reading, if more sophisticated techniques and methodologies are of interest:

Kirkpatrick, D.L., "Evaluation of Training" Training and Development Handbook, American Society for Training and Development: New York. McGraw-Hill. 1967. Chapter 5.

Becker, Gary S., Human Capital; National Bureau of Economic Research, Columbia University. 1964.

Hinrichs, Harley H. and Taylor, Greame M., ed.; Program Budgeting and Benefit Cost Analysis; (Goodyear Publ. Co.: Pacific Palisades, Calif.). 1969. "Case 15: Office of Economic Opportunity: Evaluation of Training Programs."

Tracey, William R., Evaluating Training and Development Systems; American Management Assoc., Inc. 1968.

APPENDIX A

MARKETING IN-PLANT PROGRAMS

THE MARKETING FUNCTION

As with the sale of any sophisticated product or technical service, the "sale" of upgrading programs to employers requires a well-planned marketing effort. That marketing effort must not only match its product with the expressed needs of potential consumers, but must also contain an aggressive strategy for "creating" markets.

The total marketing function can be broken down into four basic components and ten clearly defined steps.

- Market Analysis. The Market Analysis is the process by which the general market for the product is determined. It involves three steps.

  Step 1: Analyzing the national employment trends which are affecting employers in the target area,

  Step 2: Analyzing the particular employment and training needs of the local market, and

  Step 3: Selecting a universe of employers in the market area who would be the most likely consumers of upgrading programs.

- The Marketing Plan. The Marketing Plan will spell out the total approach to follow in selling upgrading programs. It involves three steps.

  Step 4: Setting marketing goals in terms of number of programs to be sold by industry,

  Step 5: Determining the sales strategy and techniques to be employed, and

  Step 6: Developing sales materials to support the marketing effort.

- Program Sales. Program Sales will only involve two steps.

  Step 7: Knowing the individual customer, his needs and the product's relation to them, and

  Step 8: The sales presentation(s).

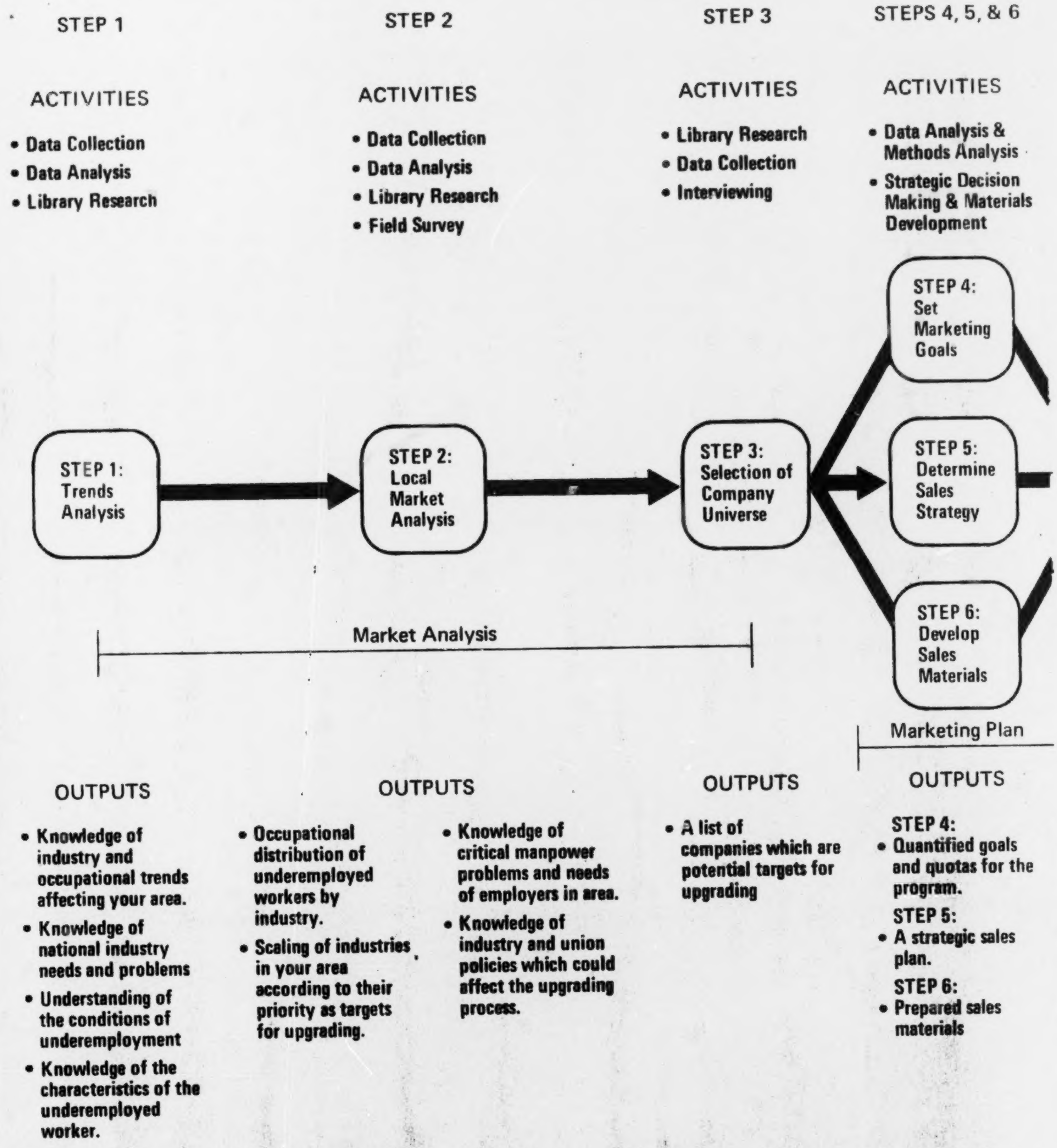
- Sales Negotiations. Sales Negotiations is listed as a separate component since it involves the development of a technical agreement with the employer and may involve programmatic decisions. Two steps are involved.

  Step 9: The conduct of negotiations, and

  Step 10: Follow-up on the sales agreement.

Each of these ten steps is a logical stage in the development of a successful marketing effort. Guidelines for performing the activities within each are detailed in the sections which follow.

Figure 2 graphically illustrates the sequence activities and outputs for each step and will give an overview of the entire marketing function. It should be referred to as each section is read.


STEP 1: Trends Analysis
STEP 2: Local Market Analysis
STEP 3: Selection of Company Universe
STEP 4: Set Marketing Goals
STEP 5: Determine Sales Strategy
STEP 6: Develop Sales Materials
Market Analysis
Marketing Plan

STEP 1

ACTIVITIES

- Data Collection
- Data Analysis
- Library Research

OUTPUTS

- Knowledge of industry and occupational trends affecting your area.
- Knowledge of national industry needs and problems
- Understanding of the conditions of underemployment
- Knowledge of the characteristics of the underemployed worker.

STEP 2

ACTIVITIES

- Data Collection
- Data Analysis
- Library Research
- Field Survey

OUTPUTS

- Occupational distribution of underemployed workers by industry.
- Scaling of industries in your area according to their priority as targets for upgrading.
- Knowledge of critical manpower problems and needs of employers in area.
- Knowledge of industry and union policies which could affect the upgrading process.

STEP 3

ACTIVITIES

- Library Research
- Data Collection
- Interviewing

OUTPUTS

- A list of companies which are potential targets for upgrading

STEPS 4, 5, & 6

ACTIVITIES

- Data Analysis & Methods Analysis
- Strategic Decision Making & Materials Development

OUTPUTS

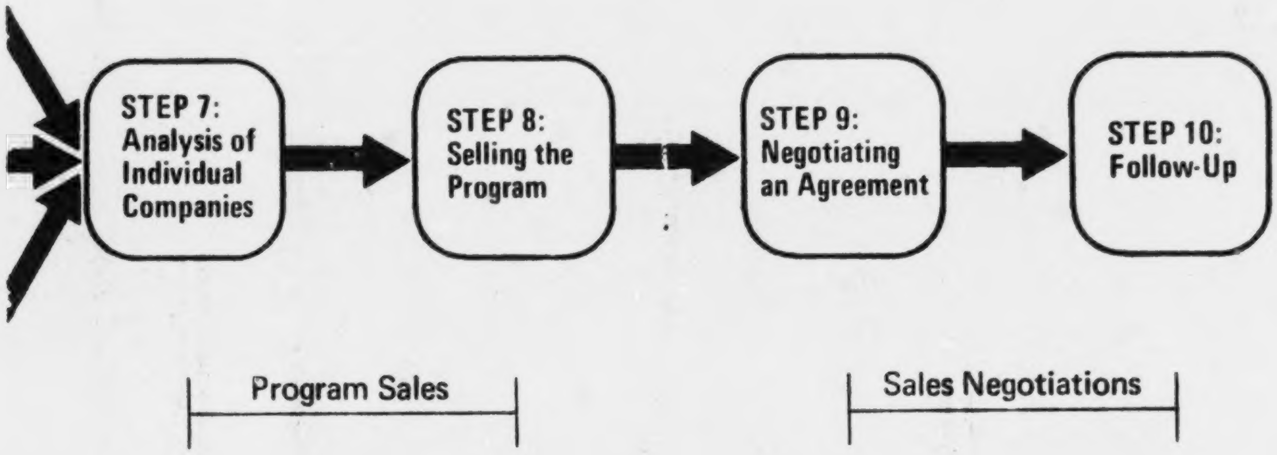
STEP 4:
- Quantified goals and quotas for the program.

STEP 5:
- A strategic sales plan.

STEP 6:
- Prepared sales materials

Figure 2: The Marketing Function

STEP 7	STEP 8	STEP 9	STEP 10
ACTIVITIES	ACTIVITIES	ACTIVITIES	ACTIVITIES
• **Financial Analysis** • **Data Collection** • **Telephone Interviews**	• **Sales Contact Development** • **Sales Presentation** • **Involvement of Affected Parties**	• **Negotiations** • **Trainer Involvement**	• **Follow-up Work**
OUTPUTS	OUTPUTS	OUTPUTS	OUTPUTS
• **Specific knowledge about a specific company, its needs, its problems, its policies.**	• **A tentative agreement with employer and union to implement an upgrading program.**	• **A letter of agreement for the program.** • **Established relationship with company liason** • **Trainer/analyst assigned to conduct the program.**	• **Final arrangements for plan of work.** • **Resolution of unresolved issues.**


STEP 7: Analysis of Individual Companies
STEP 8: Selling the Program
STEP 9: Negotiating an Agreement
STEP 10: Follow-Up
Program Sales
Sales Negotiations

The Marketing Function:

The Marketing Function covers all those activities from an initial analysis of the trends affecting the marketing area to the conclusion of a sales agreement with the employer.

The principles of good marketing which underlie each of these steps would also apply to the problems of internal marketing.

THE MARKET ANALYSIS

Step 1: Trends Analysis

Before attempting to identify employers in the area as targets for the marketing effort, a grasp of the national trends affecting major industry and occupational groups is necessary. Knowledge of these trends will permit activities to be focused on those industries (and the employers operating within them) which would be the most likely consumers of the upgrading approach to be marketed. It should be possible to answer the following questions:

- Which industries are growing? Declining? To what extent does their growth or decline represent a long-term trend? Which industries are likely to grow rapidly as the result of major governmental decisions or in response to an urgent national need for particular goods or services?

- What jobs or occupations are in greatest demand? What is the state of labor supply for those positions? Where are the jobs located? Where are the most pressing shortages of workers?

- Which industries (and occupational areas) suffer from chronic high turnover rates, comparatively slow growth in productivity per man/hour? Which industries (and occupations) pay the lowest wages?

- In which industries and occupations are low-skilled, minority-group workers and other disadvantaged workers most heavily concentrated?

Of course, some industries and occupational areas will be constants in the needs identification. One constant would be the entire health services industry and health service occupations.

The first stage in the development of a knowledge of trends should be a review of standard literature analyzing those trends. A good starting point would be a thorough review of the Manpower Report of the President (most current edition) and the Economic Report of the President, both available through the Government Printing Office. From these two documents, it should be possible to obtain an overall picture of employment and economic trends.

After reviewing these two documents, a list of those industries should be developed which would be the most likely targets for upgrading in terms of the following:

- A comparatively rapid growth rate which would indicate a need for a large number of workers to fill new semi-skilled jobs;
- A reported chronic shortage of workers, chronic turnover problems, and other manifestations of manpower problems with lower-level work force; and
- A heavy concentration of low-wage, low-skill workers in service, operative and labor classifications.

Data on the industries in the listing can be expanded by additional readings of industry survey reports published by the Bureau of Labor Statistics, U.S. Department of Labor. However, if the project is operating under severe time constraints, it will be necessary to proceed to Step 2, once a list of industries which would be likely targets for upgrading has been developed.

Additional sources which can be used to expand data on specific industries include:

National Offices of the Federal Reserve Bank;
Fortune Magazine reports on specific industries;
National Industry Association Yearbooks, and
National Chamber of Commerce Reports.

Before expanding data on a particular industry, it should be determined whether it has operations in the area. This procedure will avoid developing data not directly relevant to the purpose of the market analysis.

The industry listing, and the data compiled, can now be used as the basis for an analysis of the local market. Data which has been collected should be preserved in some orderly form. It will be useful in Steps 5 and 6 when developing sales materials and deciding on a sales approach and presentation. The data should also be preserved for use in orienting project staff to program sales and the problems of underemployment.

Step 2: The Local Market Analysis

From the list of target industries (based on national trends) developed in Step 1, a selection of those industries or industry sectors which employ residents of the target area should be made.

A distribution of employed workers by occupation and industry (and by ethnicity) in the area should be available through the local CAMPS committee responsible for compiling such data on the area. The statistics section of the local CAMPS plan should also list data on skill shortages, unfilled jobs, occupational demand projections, wages, etc.

Other sources of data for the local area include area labor force, wage, and industry studies published by the Bureau of Labor Statistics. Local Industry Associations, Chambers of Commerce, Model City Agencies, Community Action Agencies, union officers, planning commissions and other planning bodies may also serve as sources on data.*

Assistance in the collection and analysis of data can be obtained through the local state District Supervisor or the U. S. Bureau of Labor Statistics with jurisdiction over the area.

Each of the industries in the area which is listed as a likely target for upgrading should then be profiled according to the following factors:

- Concentration of low-skill workers
- Minority-group employment concentration
- Turnover rates
- Wages
- Skill shortages and unfilled jobs
- Industry growth (in terms of employment)
- Industry location (in terms of accessibility in residential areas)

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* The local Federal Reserve Bank, local commercial banks, utilities, major industrial real estate brokers, promotional and business editor departments of local newspapers, and the Editor's and Publisher's Yearbook are also excellent potential sources of data on the local market.

A simple ranking system should then be used to develop a priority listing of industries from those which will be "the most likely" targets for upgrading to those which would be "the least likely" targets. The ranking system should take all of the above factors into account.

For example:

Concentration of low-skill workers. Each industry should be ranked according to the degree to which it utilizes low skill workers. Values could be assigned to this category on a three point scale.

- If less than 10% of the industry's work force is employed in operative, labor and low-paying service jobs, its score would be: 0
- If 10-20% are employed in operative, labor and low-paying service jobs, its score would be: 1
- If 20-50% . . ., its score would be: 2
- If more than 50% . . ., its score would be: 3

Each industry within the area could be scored for this category and each of the other six factors in similar fashion. The ranking criteria for each factor should be kept as simple as possible. Industries which rank in the highest quarter of those listed should be considered primary targets for upgrading.

Once a priority ranking of industries according to their potential as targets for upgrading has been completed, the selection of a universe of companies within high priority industries to which you will direct your sales efforts can begin. The data collected in order to evaluate and scale industries in the area should be preserved for later use.

Step 3: Selection of a Company Universe

For the list of industries ranking in the highest quarter of all those selected, specific companies within each industry must now be identified.

A good starting point for the collection of data on specific companies is the Industry Association for a specific industry. Through the industry associations, it should also be possible to get an idea of which companies are viewed as leaders or pace-setters in the industry.

A second contact point would be the Local Chamber of Commerce.

The list of companies can be extended by contacting the State Employment Service and requesting company listings from the unemployment insurance register. This listing will also give some indication of the present employment situation with a particular firm. For example, if the firm is presently laying off help in lower level occupations, it is not likely that the firm would be a good target for upgrading programs. (This is not necessarily true, particularly for larger firms.)

Additional tools which can be used to evaluate the company listings are Dunn and Bradstreet ratings and a Standard and Poor prospectus on the particular company.

The union representing employees in a particular industry will also serve as an excellent source for specific data on companies. In some cases the project's relationship with the union can serve as an entree into a company.

Once a list of companies for each of your priority industries has been developed, a selection of those companies which would probably be most receptive to a program to upgrade underemployed workers can be made. Although there are no hard criteria which can be used to select those companies, the following should be kept in mind:

- companies which have good reputations (with unions, community groups, etc.) for developing their employees will probably be more receptive to the product than those which have negative reputations;

- companies which employ upwards of 100 people will probably be more willing to invest time and resources in the development of low-skilled workers since they are more likely to have a wider margin between operating costs and receipts than smaller firms;

- companies which are in a labor intensive industry and operating within a seasonal market are not likely to make good targets for upgrading;

- companies which have been expanding rapidly or have diversified their product production are likely candidates for upgrading programs;

- companies which are experiencing incapacitating financial difficulties or decline should only be cautiously pursued as targets for upgrading;

- certain companies and industries can be considered as "constants": these would include hospitals, large communications industry operations in core urban areas, and public service operations.

In selecting particular companies the possible means for gaining access to the management of those companies should be kept in mind. From the data gathered earlier, it should be possible to establish what occupations would be involved in an upgrading program with the particular company under consideration.

The number of companies which are actually selected (or major divisions of larger companies) should be from four to five times as many as the number of upgrading programs that the project can reasonably expect to market within a one year period. Once the company listings are screened, the setting of goals for the marketing effort can begin.

Step 3 completes the Market Analysis.

Step 4: Setting Marketing Goals

Having analyzed the market and selected specific companies, marketing goals for the project should now be formulated. The importance of goal setting cannot be over-emphasized. Goals should define where to be by a certain point in time. Their function is to help guide and focus project activities on specific targets. Even if the project has been assigned goals in terms of numbers of workers to be upgraded, goals should still be set for the industries and occupations in which workers are to be trained.

Project goals should reflect what is considered to be the maximum or ideal that the project can achieve within a certain time period and under optimal conditions. As such, the project goals are ideal goals. This is not to say that project goals should be beyond reason. To the extent possible, they should state what can optionally be achieved in a defined time period, given available resources.

If goals are conscientiously set, you will be able to evaluate the success by the degree to which the achievement approximates the ideal. Work on Steps 5 and 6 can proceed simultaneously with the development of marketing goals.

Formulating Goals

In formulating realistic project goals the following should be remembered:

- Staff resources. How many staff members will be involved in the marketing effort? Based on experience and skills, how successful will each probably be in marketing programs? How much time will be required to train them for a sales position?

- Time. How much time will be available to you for the marketing effort?

- Intervening variables. What activities and events will probably intervene in the marketing effort and probably be required to suspend resources from marketing activities? For example, holidays, staff illness and vacations, staff turnover, professional conventions, etc.

- Contract requirements. Does the contract or project plan commit you to specific numbers of workers to be upgraded within a certain time period? If so, project goals must be adjusted to meet those project commitments.

Each of these factors will place limits on the goals set for the project. The requirements of each should be carefully weighed.

Formulating Goal Statements

After carefully considering the implications of each of the foregoing factors, formulation of specific goal statements can begin. Goals should be stated in terms of the following:

- the total number of upgrading programs (at approximately 10 trainees per program) the project expects to market within a given time period;
- the distribution of the total number of programs to be marketed by priority industry;
- the distribution of programs by occupational areas within priority industry groups; and
- the assignment of program marketing quotas to individual staff selling the programs.

Step 5: Determining Sales Strategy

A variety of methods and techniques can be used to build a sales strategy. While developing a strategy the contacts made while collecting data should be taken into account. Possible techniques are as follows:

Direct Methods and Techniques

Qualified Leads. The use of qualified leads is by far the most effective technique which can be used to market an upgrading program. The technique functions on the principle of "who you know - and how willing they would be to recommend you and your program." Examples of qualified leads are:

- the recommendations of previous satisfied customers (A qualified list of client references during the project's history should be carefully built. Never use a client's name without his explicit permission.);
- the recommendation and referral of an industry association representative or Chamber of Commerce member. A phone call to the appropriate company man by reference is always more effective than a general letter of referral; and
- the endorsement of a key public official, a well-known businessman or businessmen's group. In soliciting this kind of testimonial, glowing, general statements about the project should be avoided. Again, a phone call by the official or group to the right man in the target company is worth a thousand ringing phrases in writing.

As an approach to marketing, qualified leads should be used as judiciously as possible. Without careful evaluation of the possible implications of using a particular recommendation or reference, the source could be overused and alienated. Special caution should be applied when using an employee union as a reference. As a rule, each situation should be evaluated before using qualified leads.

Before making any strategy commitments to the use of qualified leads, the capability to develop those leads and determine what and who they might be before including the method in the strategy should be assessed.

Mailing. Indiscriminate mailing of brochures describing the project have proved to be of little or no value. In deciding whether or not to use this technique the following should be considered:

- does the project have the resources to develop an attractive enough brochure or visual presentation to make the effort worthwhile, and

- what accessability is there to the names of key personnel in target companies to whom a brochure could be mailed?

A mailing will not sell upgrading programs. The most that can be expected from it as a promotional measure is an exploratory response. Mailings can also be used as follow-up to telephoning qualified lead contacts.

Telephoning.* Telephoning (to the right person) can be an effective method for "getting a foot in the door" in following up on mail or indirect contacts. Telephoning should lead to a sales appointment: selling over the telephone should not be attempted! Telephoning as a sales technique should include careful pre-call planning and studied methods of verbal presentation and listening. Telephoning should only be used as a supportive element in the marketing strategy.

Individual Sales Meetings. The individual sales meeting is the key element in the marketing strategy. Guidelines for effective presentation, materials and aides are detailed below and in the section of the handbook entitled: "Selling Upgrading Programs."

Indirect Methods and Techniques

A series of indirect methods of techniques can be used to supplement the primary sales strategy. They include:

- Group sales presentation

- Mass media

The project can arrange for sales presentations before groups of prospective employers. Occasions which could be exploited for this purpose are:

- Industry Association Meetings

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* See Guidelines for Marketing and Sales, Volume 2. Skill Achievement Institute, pp 81-90.

- Industry Committee Meetings within the Chamber of Commerce
- Management Association Meetings
- Gatherings arranged for the specific purpose of selling the upgrading concept.

Sales closure should not be attempted at a group sales meeting. Such meetings should be followed up with phone calls, mailings and personal contacts with companies represented.

Various mass media methods and techniques can be used to give the project broad exposure. They include:

- articles about the project in newspapers, magazines, trade and industry journals and newsletters;
- tasteful radio and local television "spots" on your program, its goals and purposes, and whom to contact for additional information;
- published lectures on the problems which the project addresses; and
- special exhibits, school programs, conferences, etc.

The above two sections have presented a range of direct and indirect methods and techniques upon which to build the marketing strategy. Based on an analysis of the staff's skills and other available resources, a sales strategy which best suits the needs and is likely to effective in the specific project area should be formulated.

Step 6: Developing Sales Materials

As support to the marketing strategy, sales materials which can be used for one of the following three purposes should be developed:

- General promotion
- Sales presentation
- Sales follow-up

Materials which can be used for general promotion purposes can include: brochures, leaflets, and inserts of various kinds. Promotional materials of this nature should be kept as simple and attractive as possible. Brochures should contain at least the following elements:

- a statement of the problem;
- a brief description of the organization; its goals and purposes;
- a nontechnical statement about the service which is offered to employers;
- a listing of some of the benefits to be derived from that service; and
- a statement telling whom to call or write for additional information.

Brochures of this type can be used (discriminately) to give the project general exposure, as follow-up to requests for information and contacts, etc. The brochure device should not be used as a means for transmitting technical information about the project and the upgrading approach.

Materials which can be developed for use in sales presentations should be of a more technical nature and can include:

> A demonstration kit which contains: (1) a brief explanation of upgrading program components; (2) charts or viewgraphs illustrating benefits to the employer (reduced turnover, etc.); (3) specific services which can be provided by the project; (4) what will be required of the employer; (5) a list of satisfied customers, recommendations, etc.; and
>
> Visual materials which will illustrate how upgrading works and how it can be used to solve the specific manpower problems of the employer to whom it is being presented.

Of course, the ability to develop sales presentation material will be limited by the financial resources available for that purpose. Whatever materials are prepared, however, should be done professionally and only be used to support a well-prepared salesman in his presentation of the program. The materials should be geared to the needs of the target companies.

Sales follow-up materials may include detailed explanations of various aspects of the program. Follow-up materials could include:

- a detailed explanation of the manpower analysis activities, and the time and personnel demands it will make on the employer;
- a typical set of objectives and curriculum for an in-plant program.
- a job description for the trainer telling what he is supposed to do and when.

Step 7: Analysis of Individual Companies

Before a salesman attempts to sell an upgrading program to a particular company, he should gather as much specific data on the company as possible. Beginning with the profile of the company developed in Step 3, the salesman should try to gather the following background data on the company:

- its history and products;
- its production process, the principles and machinery included;
- its status in the industry;
- its promotional and hiring policies;
- its relationship with unions representing workers; and
- its experience in training the work force.

Sources for this background data would include the union, interviews with employers, annual reports, etc. The background data will be of great value to the salesman in his presentation and negotiations. In short, know the company.

Step 8: Selling the Program

Working within the framework of the project's goals and the strategy which has been formulated, individual salesmen should be allowed considerable freedom in sales presentation. Although structural steps will precede the first face-to-face sales meeting, that first meeting will be the most crucial step in the sales efforts.

Before making final arrangements for that meeting, the salesman must be sure that it is being held with the right man — the man who will be making the decision to go with the upgrading program.

The first contact with an organization should be made with the president or chief operational officer. He is the one who can say "yes" or "no" to any program entering his system. Experience has shown that a sale can be lost, or drawn out for months, if contact is not made early in the process with the man who can make the "go" or "no-go" decision. The larger the organization, of course, the more difficult it is to reach the top.

Very often the salesman is referred to the Plant Manager, or to the Personnel or Training Directors where these positions exist. Experience at this level of the organization is mixed.

At the outset there is caution, suspicion and, in some cases, hostility to an outside agency entering the system. This preliminary anxiety must be allayed with reassurances that the product can enhance the position of middle management by supplying a more efficient, productive labor force. Some Personnel and Training Directors, once convinced of the attributes of the product, became strong advocates of the program and were instrumental in bringing the sale to closure. Others, however, were antagonists, and the salesman found it necessary to circumvent them by renewed appeals at other levels or through other channels.

These difficulties serve to underline the strong recommendations that initial sales contact be maintained with top managers.

The Initial Presentation

The first meeting is the most crucial. It is not recommended that the salesman use a "canned" statement. However, every salesman should have a prepared presentation and have tested it in a role-play situation beforehand. The presentation should cover the following:

- A brief explanation of who the salesman represents and a description of the product;
- Leading questions to obtain some general information concerning manpower and/or organization problems, and especially existing training programs;

- An elaboration of some of the more common manpower problems in organizations, i.e., turnover, absenteeism and low morale, and the cost of these to the organization;

- Specific references to the training program that will help to solve the manpower problems suggested by the customer;

- Reference to other training approaches: On-the-Job-Training (OJT); formal skill programs designed to be repeated on a scheduled basis, followed by an explanation of the unique features of the product being sold; how the program differs from others in methodology and concept by relating the worker and his job to his total environment, one of the major differences being that it is a training program designed to produce its impact in a short period of time;

- An explanation of how the company benefits, with emphasis on cost benefit factors;

- References to benefits for the employee and how they in turn benefit the organization;

- Examples of how and where the product has been used by other organizations; (Copies of commendations from satisfied users would be useful. For purposes of reassuring the customer, be prepared with references he can call to check.)

- An analysis of the "cost" of the program to assuage the fears held in business of receiving "something for nothing", especially from the government, defining what is expected of the employer in terms of the cost to him, i.e., training on company time or time-and-a-half overtime, and salary increase;

- A presentation of the features of the product other than the upgrading training — job task analysis, training of company trainer, supervisory training, orientation programs or an appeal to another perceived need; and

- A final question to the prospect — what does he think of the ideas just presented? If the concept is accepted, pin down the next step. If objections are raised, probe reasons and give responses. Lead the discussion to positive action.

These points are a good working outline for the prepared presentation. They help the salesman concentrate on what he wants to cover and how he wants to present his product to the customer. The initial visit is too important to be "played totally by ear." The salesman must be in command of the interview at all times. If either he or the prospect move the discussion from its planned course, the salesman should have the necessary aplomb to return to the main purpose of the conversation — selling the program.

The salesman should also be prepared to answer specific questions and objections raised by employers. The following questions are a sample of those raised by employers in the past:

- Why create prima donnas by selecting trainees and causing morale problems among peers?

- There are too many problems involved, e.g., seniority in union contract.

- We already have skill programs. How does yours differ?

- Why would salary increase be involved?

- How can training be done in a short period of time?

The initial sales presentation will most likely be followed by presentations to department heads and other managers in the firm. These presentations will probably be more specific than the first but should follow the same approach.

Salesmen should never allow company middlemen to "sell" the program to others.

At the point where an appropriate top-level official expresses a desire to proceed with the program, sales enter the negotiations phase.

APPENDIX B

SAMPLE FORMS

Job Title ____________________

SAMPLE FORM A

TASK DESCRIPTION WORKSHEET

1. Analyst's name ______________________________ 2. Date ______________

3. Name of performer being observed or interviewed ______________________ 4. Task# ______________

5. Task name or general description ______________________________________
____

6. What tools, equipment machinery, or materials does the performer use or act upon in performing the task?

a. ______________________
____
b. ______________________
____
c. ______________________
____
d. ______________________
____
e. ______________________
____
f. ______________________
____
g. ______________________
____
h. ______________________
____
i. ______________________
____

7. How does the performer use or act upon each of the items listed in question #6 while performing the task?

a. ______________________
____
b. ______________________
____
c. ______________________
____
d. ______________________
____
e. ______________________
____
f. ______________________
____
g. ______________________
____
h. ______________________
____
i. ______________________
____

8. How much time is needed to perform the task? ____________________

9. What conditions would cause the time to vary? ____________________
____
____

10. How often is the task performed? ____________________

11. With which other workers does the performer interact while performing the task? (list by job title) ____________________
____

Task Description Worksheet, cont.

12. Describe the performer's interaction with each of the other workers listed.

13. What is the output of the task?

14. Who or what is the recipient of the output or how is the output used in production or service delivery?

15. What are the time limits on task performance? (If there is no fixed standard, what are the expectations from supervisors, crew leaders, or others?

16. What margin of error is acceptable for the task output?

17. What quality standards are used to judge the output (aesthetic, general appearance, color, etc.)?

18. What safety regulations or standards relate to the task?

19. Describe the work area and environmental conditions under which the task is performed.

Task Description Worksheet, cont.

20. What information does the performer receive and utilize and how does he act upon or utilize the information in performing the task?

Source of Information	Description of How Performer Acts Upon and Utilizes Information

THIS FORM MUST BE COMPLETED FOR EACH TASK !!

Job Title____________________

SAMPLE FORM B

KNOWLEDGE REQUIREMENTS ANALYSIS WORKSHEET

1. Analyst's name(s) ____________________ 2. Date__________

3. Name of consulting expert or supervisor____________________

4. Task # __________ 5. Name of task and general description

6. From the Task Description Worksheet and/or continued observation, what specific enabling knowledge (see definition, Section II of the Handbook) does the performer need to have in order to perform the task? ____________________

7. Within what larger body of principles or theory can the specific knowledge be incorporated? ____________________

8. Indicate the traditional mode by which this specific knowledge is generally acquired and what other specific knowledge usually precedes it in instruction. ____________________

Job Title____________________

SAMPLE FORM C

SKILL REQUIREMENTS ANALYSIS WORKSHEET

1. Analyst's name(s)______________________________ 2. Date____________

3. Consulting supervisor's name ____________________________________

4. Task # ______________ 5. Task name and general description (from Task Description Worksheet)____________
____
____

6. What human relations skills are required of the performer in interactions with peers, supervisors or recipients of the task output? (Questions 11,12, and 14 of Task Description Worksheet)

Interaction	Human Relations Skills Required
a.________________________ ________________________	a.________________________________ ________________________________
b.________________________ ________________________	b.________________________________ ________________________________
c.________________________ ________________________	c.________________________________ ________________________________
d.________________________ ________________________	d.________________________________ ________________________________
e.________________________ ________________________	e.________________________________ ________________________________

7. What physical manipulation skills are required of the performer in using or acting upon tools, equipment, machinery or materials while performing the task?

Tool, Equipment, Machinery or Material used or Acted Upon	Physical Manipulation Skill Required
a.__________________________ __________________________	a.________________________________ ________________________________
b.__________________________ __________________________	b.________________________________ ________________________________
c.__________________________ __________________________	c.________________________________ ________________________________
d.__________________________ __________________________	d.________________________________ ________________________________

Sample Form C, cont.

e. ____________	e. ____________
f. ____________	f. ____________
g. ____________	g. ____________
h. ____________	h. ____________
i. ____________	i. ____________

8. What information handling skills are required of the performer while performing the task? (see question 20, Task Description Worksheet)

Description, Source of Information Used or Acted Upon	Information Handling Skills Required for Utilization
a. ____________	a. ____________
b. ____________	b. ____________
c. ____________	c. ____________

9. Are any of the following information handling skills required by the task? (See Handbook, Section II for procedures)

Required Skill	Not Needed	Needed to Very Slight Extent	Needed to Some Small but Appreciable Extent or Greater
Alphabetizing	0	1	2
Spelling	0	1	2
Reading	0	1	2
Writing	0	1	2
English Grammar	0	1	2
Speech	0	1	2
Computation	0	1	2

SAMPLE FORM D

APTITUDE REQUIREMENTS
ANALYSIS
WORKSHEET

1. Analyst's name(s)________________________ 2. Date __________

3. Name of consulting supervisor ______________________________

4. Task # ____________ 5. Name of task and general description ____
____
____
____

6. Which of the following aptitudes are required of the performer in successfully executing the task? (See Handbook, Section II for procedures.)

Basic Aptitude*	Not Needed	Needed to Very Slight Extent	Needed to small but Appreciable Extent or Greater
Spatial Visualization	0	1	2
Spatial Relations	0	1	2
General Mechanical Apt.	0	1	2
Control Precision	0	1	2
Manual Dexterity	0	1	2
Finger Dexterity	0	1	2
Reaction Time	0	1	2
Color Discrimination	0	1	2

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*This listing may be expanded or refined depending on the particular requirements of the job, and in some cases may include requirements for certain temperaments or physical duress factors.